

■ This product is eligible for the P2HD  
5 Year Warranty Repair Program. For  
details, see page 7.

## Operating Instructions

Memory Card Camera-Recorder

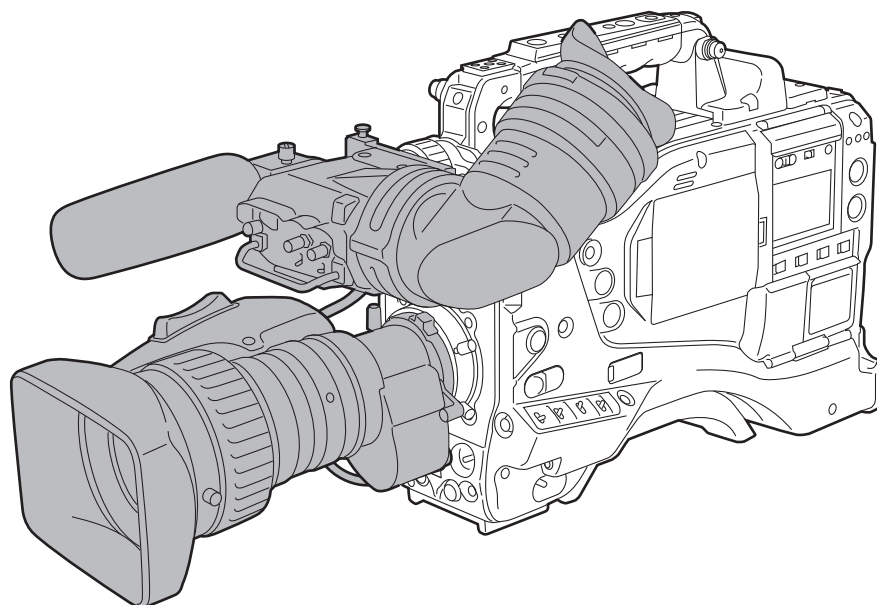
Model No. **AJ-HPX3700G**

**P2HD**

**AVC INTRA**

**V**  
**VARICAM**

**DVC PRO HD**



Before operating this product, please read the instructions carefully and save this manual for future use.

# Read this first!



## CAUTION

**RISK OF ELECTRIC SHOCK  
DO NOT OPEN**



**CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK,  
DO NOT REMOVE COVER (OR BACK).  
NO USER SERVICEABLE PARTS INSIDE.  
REFER TO SERVICING TO QUALIFIED SERVICE PERSONNEL.**



The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (service) instructions in the literature accompanying the appliance.

## WARNING:

- **TO REDUCE THE RISK OF FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS EQUIPMENT TO RAIN OR MOISTURE.**
- **TO REDUCE THE RISK OF FIRE OR SHOCK HAZARD, KEEP THIS EQUIPMENT AWAY FROM ALL LIQUIDS. USE AND STORE ONLY IN LOCATIONS WHICH ARE NOT EXPOSED TO THE RISK OF DRIPPING OR SPLASHING LIQUIDS, AND DO NOT PLACE ANY LIQUID CONTAINERS ON TOP OF THE EQUIPMENT.**

## CAUTION:

**In order to maintain adequate ventilation, do not install or place this unit in a bookcase, built-in cabinet or any other confined space. To prevent risk of electric shock or fire hazard due to overheating, ensure that curtains and any other materials do not obstruct the ventilation.**

## CAUTION:

**TO REDUCE THE RISK OF FIRE OR SHOCK HAZARD, REFER MOUNTING OF OPTIONAL INTERFACE BOARDS TO QUALIFIED SERVICE PERSONNEL.**

## CAUTION:

**TO REDUCE THE RISK OF FIRE OR SHOCK HAZARD AND ANNOYING INTERFERENCE, USE THE RECOMMENDED ACCESSORIES ONLY.**

## CAUTION:

**Excessive sound pressure from earphones and headphones cause hearing loss.**

## Declaration of Conformity

Model Number: AJ-HPX3700G  
Trade Name: Panasonic  
Responsible Party: Panasonic Corporation of North America  
One Panasonic Way, Secaucus, NJ  
07094  
Support contact: 1-800-524-1448

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:  
(1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

### FCC Note:

This equipment has been tested and found to comply with the limits for a class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.
- The user may find the booklet "Something About Interference" available from FCC local regional offices helpful.

### Warning:

To assure continued FCC emission limit compliance, follow the attached installation instructions and the user must use only shielded interface cables when connecting to host computer or peripheral devices. Also any unauthorized changes or modifications to this equipment could void the user's authority to operate this device.

## CAUTION:

**Do not leave the unit in direct contact with the skin for long periods of time when in use. Low temperature burn injuries may be suffered if the high temperature parts of this unit are in direct contact with the skin for long periods of time. When using the equipment for long periods of time, make use of the tripod.**

## CAUTION:

**Do not lift the unit by its handle while the tripod is attached. When the tripod is attached, its weight will also affect the unit's handle, possibly causing the handle to break and hurting the user. To carry the unit while the tripod is attached, take hold of the tripod.**

 indicates safety information.

A rechargeable battery that is recyclable powers the product you have purchased.

**<For USA-California Only>**

This product contains a CR Coin Cell Lithium Battery which contains Perchlorate Material — special handling may apply. See [www.dtsc.ca.gov/hazardouswaste/perchlorate](http://www.dtsc.ca.gov/hazardouswaste/perchlorate).

**Caution regarding laser beams**

The CCD may be damaged if it is subjected to light from a laser beam.

When using the camera-recorder in locations where laser irradiation equipment is used, be careful not to allow the laser beam to shine directly on the lens.



## To remove the battery

### Main Power Battery (Ni-Cd / Ni-MH / Li-ion Battery)

- To detach the battery, please proceed in the reverse order of the installation method described in this manual. (Refer to page 113 for the detail.)
- If a battery made by any other manufacturer is to be used, check the Operating Instructions accompanying the battery.

### Back-up Battery (Lithium Battery)

- For the removal of the battery for disposal at the end of its service life, please consult your dealer.

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## PLEASE NOTE:

- When preparing to record important images, always shoot some advance test footage, to verify that both pictures and sound are being recorded normally.
- Should video or audio recording fail due to a malfunction of this camera-recorder or the P2 cards used, we will not assume liability for such failure.
- If the unit is operated continuously with the fan stopped due to a failure, camera images may not be output, recorded, or played back properly.

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## What to remember when throwing memory cards away or transferring them to others

Formatting memory cards or deleting data using the functions of the unit or a computer will merely change the file management information: it will not completely erase the data on the cards. When throwing these cards away or transferring them to others, either physically destroy them or use a data deletion program for computers (commercially available) to completely erase the data. Users are responsible for managing the data on their memory cards.

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EEE Yönetmeliğine Uygundur.

EEE Complies with Directive of Turkey.

Pursuant to at the directive 2004/108/EC, article 9(2)

Panasonic Testing Centre

Panasonic Service Europe, a division of Panasonic Marketing Europe GmbH

Winsbergring 15, 22525 Hamburg, F.R. Germany

# EMC NOTICE FOR THE PURCHASER/USER OF THE APPARATUS

## 1. Applicable standards and operating environment

The apparatus is compliant with:

- standards EN55103-1 and EN55103-2 1996.11.and
- electromagnetic environments E1, E2, E3, E4 and E5.

## 2. Pre-requisite conditions to achieving compliance with the above standards

### <1> Peripheral equipment to be connected to the apparatus and special connecting cables

- The purchaser/user is urged to use only equipment which has been recommended by us as peripheral equipment to be connected to the apparatus.
- The purchaser/user is urged to use only the connecting cables described below.

### <2> For the connecting cables, use shielded cables which suit the intended purpose of the apparatus.

- Video signal connecting cables  
Use double shielded coaxial cables, which are designed for 75-ohm type high-frequency applications, for SDI (Serial Digital Interface).  
Coaxial cables, which are designed for 75-ohm type high-frequency applications, are recommended for analog video signals.
- Audio signal connecting cables  
If your apparatus supports AES/EBU serial digital audio signals, use cables designed for AES/EBU.  
Use shielded cables, which provide quality performance for high-frequency transmission applications, for analog audio signals.
- Other connecting cables (IEEE1394, USB)  
Use shielded cables, which provide quality performance for high-frequency applications, as connecting cables.
- If your apparatus is supplied with ferrite core(s), they must be attached on cable(s) following instructions in this manual.

## 3. Performance level

The performance level of the apparatus is equivalent to or better than the performance level required by these standards.

However, the apparatus may be adversely affected by interference if it is being used in an EMC environment, such as an area where strong electromagnetic fields are generated (by the presence of signal transmission towers, cellular phones, etc.). In order to minimize the adverse effects of the interference on the apparatus in cases like this, it is recommended that the following steps be taken with the apparatus being affected and with its operating environment:

1. Place the apparatus at a distance from the source of the interference.
2. Change the direction of the apparatus.
3. Change the connection method used for the apparatus.
4. Connect the apparatus to another power outlet where the power is not shared by any other appliances.

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### P2HD 5 Year Warranty Repair Program <sup>\*1</sup>


Thank you for purchasing this Panasonic P2HD device.  
 Register as a user for this device to receive a special service warranty up to five years of free warranty repairs.  
 Customers who register as users on the website will receive an extended warranty repair valid for up to five years.





	1 <sup>st</sup> year	2 <sup>nd</sup> year	3 <sup>rd</sup> year	4 <sup>th</sup> year	5 <sup>th</sup> year <sup>*5</sup>
P2HD device <sup>*2</sup>	Basic warranty <sup>*3</sup>	Extended warranty repair <sup>*4</sup>			

\*1: Please note that this extended warranty is not available in some countries/regions. \*2: Not all models eligible for extended warranty coverage. \*3: The basic warranty period may vary depending on the country/region. \*4: Not all repair work is covered by this extended warranty. \*5: The maximum warranty period may be adjusted depending on the number of hours the device has been used.

  
 Purchase P2 product

  
 Register online within 1 month

  
 "Registration Notice" e-mail sent



Free 5 years of Warranty Repairs

Make sure to save the "Registration Notice" e-mail during the warranty period.

**Details about user registration and the extended warranty:** [http://panasonic.biz/sav/pass\\_e](http://panasonic.biz/sav/pass_e)  
 Please note, this is a site that is not maintained by Panasonic Canada Inc. The Panasonic Canada Inc. privacy policy does not apply and is not applicable in relation to any information submitted. This link is provided to you for convenience.

# General

## Attention

Adjust the following 2 settings when using the unit for the first time.

- Adjust the black-balance setting when using the unit for the first time. (Refer to page 55)
- The unit is delivered from the factory with the color TV standard not yet specified. To revise the settings for frame frequency according to the TV standard, refer to the procedures described on page 14.

This unit is a CCD camcorder with a camera unit equipped with 2.2 Megapixel 2/3-type 3 CCD, and record/playback unit that is compatible with the AVC-Intra100, AVC-Intra50, and DVCPRO HD compression formats, all in one body.

The unit supports the HD methods shown in the following table. The unit is equipped with Dual Link (RGB 4:4:4) output, P-10LOG (Refer to page 112) output suitable for film production, 2D-CMS that will enhance the color rendering properties, and variable frame rate function (VFR hereafter) that can range from 1 to 30 frames for 1080/59.94i / 1080/23.98PsF / 1080/24PsF, and 1 to 25 frames for 1080/50i, etc., as a camcorder for production purposes.

For recording, the compression and recording methods are selectable among AVC-Intra100, AVC-Intra50, and DVCPRO HD. Since minimal image deterioration occurs when recording with AVC-Intra100 compression in particular, high image quality can be retained.

## ■ Supported formats

SYSTEM MODE	Shooting/Recording method		VFR	Variable range of VFR
1080-59.94i	AVC-Intra100 AVC-Intra50	59.94i 29.97PN 23.98PN	Possible	1 - 30FRAME
	DVCPRO HD	59.94i	Possible	1 - 30FRAME
		29.97P 23.98P 23.98PA	Not possible	—
1080-23.98PsF	AVC-Intra100 AVC-Intra50	23.98PN	Possible	1 - 24/25 - 30FRAME* (Possible to switch from menu)
1080-24PsF	AVC-Intra100 AVC-Intra50	24PN	Possible	
1080-50i	AVC-Intra100 AVC-Intra50	50i 25PN	Possible	1 - 25FRAME
	DVCPRO HD	50i	Possible	1 - 25FRAME
		25P	Not possible	—

\* There is a missing image in HD SDI signal for 25 to 30 frames.

For more details, refer to [Selecting a recording signal and method] (page 49) and [Recording formats and output connector signal formats] (page 50).



# Features of Camera unit

## ■ Multi-format

Various image formats are realized by switching the 2.2 Megapixel 2/3-type 3 CCD between the interlace drive and the progressive drive.

## ■ Chromatic Aberration Compensation function

The unit is equipped with a function to correct the magnification ratio chromatic aberration of lenses caused by the fact that the refractive index in lenses varies with the wavelength of light (hereinafter referred to as chromatic aberration). By using this function, chromatic aberration around the lens can be corrected and high definition images can be obtained. However, a lens supporting chromatic aberration compensation is must be used. (Refer to page 105)

## ■ Scan Reverse function

The Scan Reverse function, as standard configuration, cancels the image inversion that occurs when a lens adapter from Canon or Angenieux is used, and it can be switched through the menu settings. (Refer to page 171)

## ■ Film-REC Gamma function

To facilitate acquisition of pictures with a film-like tone, the unit is equipped with a film-like gamma function of the type developed for the Varicam (AJ-HDC27 series). (Refer to page 184)

## ■ 2-disk 4-type configuration optical filters

The unit is equipped with CC filters for 3200 K, 4300 K, 5600 K, and 1/2 ND. The 5600 K CC filter setting, often selected for shooting outdoors, and the 1/2 ND setting to allow finer adjustments to the lens aperture are provided as standard. (Refer to page 19)

## ■ 14-bit A/D conversion digital signal processing

Analog video signals are processed into digital data by a 14-bit A/D converter with sampling frequencies of 74 MHz. It is possible to reproduce images that are more finely detailed.

## ■ DRS (Dynamic Range Stretcher) function

With this function, the dynamic range of high brightness areas that may be skipped with white blanks in an ordinary recording method can be expanded by compressing images and maintaining the contrast. (Refer to page 59)

## ■ Lens file function

The unit has 64 lens files.  
By using an SD memory card, 64 lens files can be stored. (Refer to page 100)

## ■ Focus assist function

The unit will display a marker to help with focusing when shooting videos. This function provides a visual cue for focusing. (Refer to page 59)

## ■ Data management function

Within the unit, one user data file and 16 sets of scene file data can be saved.  
By using an SD memory card as the setup card, up to 8 sets of setup data can be stored. (Refer to page 91)

## ■ Color bar

The unit employs the SMPTE color bar, Split color bar for SNG (Satellite News Gathering) as well as the conventional color bar, which is useful for adjusting the color monitor. (Refer to page 193)

## ■ VFR

This unit has a VFR function which allows overcrank and undercrank shooting. (Refer to page 38)

## ■ Monitor Gamma

When the gamma setting is set to "FILM-REC", images with FILM-REC gamma characteristics (Nega look images) are output to the HD SDI A · B outputs, the monitor, the viewfinder, the remote control unit and the LCD, and recorded to the P2 card.

It is possible to convert the monitor output image, viewfinder output image, remote control output image, and LCD output image, out of different output images, to a higher contrast image (POSI LOOK image) by operating this function.

## ■ P-10LOG

It is possible to select the image signal data format suitable for workflow of film production DI (DIGITAL INTERMEDIATE). Color rendering properties are enhanced by the 2D-CMS (2 dimensional color management system). It is valid against the output signals of the Dual Link (RGB 4:4:4).

But, it will not be reflected to a recording onto the P2 card.

## ■ Cinematographer settings

Only the menu items that are used often for a film production are collected, and registered in USER MENU. Also, each menu item is set to a value suitable for film production.

# Features of Recorder/Player unit

## ■ Multiple Slots

The unit is equipped with 5 slots for P2 cards. Up to 5 cards may be inserted in these slots for continuous recording. They also provide new recording capabilities specific to memory cards.

### ● Hot-Swap recording

The Hot-Swap capability allows cards not in use to be replaced without interrupting recording. This facilitates continuous recording.

### ● LOOP REC function

The unit can retain a certain amount of previously recorded material by continuously loop-recording data into a specified recording area.

### ● INTERVAL REC/ONE SHOT REC function

The unit features interval recording at minimum one-frame intervals. This function is particularly suited to shooting science and nature programs. Frame-by-frame shooting is simple with the one-shot recording function.

### ● PRE RECORDING function

In standby status, the unit always stores video and sound input to the camera for up to 8 seconds. This means that the PRE RECORDING function, when turned on, records the video and sound for a preceding duration preset by the user. This feature recovers critical moments that you might have missed.

### ● Proxy recording (when AJ-YAX800G attached)

By installing the optional video encoder card (AJ-YAX800G), MPEG4 format video and real-time metadata such as time code data can be recorded simultaneously on the P2 card and the SD memory card, together with the video and sound recorded by the camera. This function is useful for confirmation or editing of clips. For more information about the approximate duration for proxy recording on SD memory cards, see [Approximate Proxy Recording Time (optional) on SD memory cards] (page 12). Please also see <Cautions in using SD memory cards> (page 23)

### ● Data protection

Data on P2 cards will not be lost due to overwriting unless the files are deleted or the cards are initialized. Recordings are written only to free space.

## ■ AVC-Intra100/AVC-Intra50/DVCPRO HD switchable

Recorded video is compressed through a component digital recording method that uses a state-of-the-art compression technology, and sound is recorded using the non-compression PCM recording method, which excels in such areas as S/N ratio, frequency bands, waveform properties and reproducibility of fine areas. These methods further enhance the quality of images and sound.

It is also possible to select DVCPRO HD in addition to AVC-Intra100/AVC-Intra50. The unit performs the in-frame compression.

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### ◆ Note

When the clip is played back in the format not selected on the menu, the picture may be disturbed until the format is detected. This is not a failure.

## ■ 4-channel Digital Audio Recording (all formats)

All formats except VFR native recording support 4-channel digital audio recording.

## ■ Clip Thumbnailing

### ● Automatic generation of thumbnails

The unit automatically generates a thumbnail for each recording cut (clip). It is possible to make use of this on the unit as well as for non-linear editing purposes, and after uploading to a server.

### ● Thumbnail display on the LCD monitor

The 89 mm (3.5-inch) color LCD side of the unit can provide a multi-screen view of 12 clip thumbnails. Alternatively, the LCD can provide a view of 6 enlarged thumbnails. You can choose a desired clip to playback instantly.

### ● Seamless playback of selected clips

You can select more than one clip from the thumbnail view for continuous playback and output of seamless video.

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### ◆ Note

During continuous playback of clips in different recording formats, seamless playback is not available.

### ● Display of clip information

By selecting clips, information added to clips, such as the recording time, text memo, shot marks and metadata can be checked.

### ■ Text memos & Shot marks

Each clip can incorporate comments, in the form of text memo added to the thumbnail associated with the time code, together with shot marks which, for example, can help you distinguish OK cuts from reject cuts.

Both text memos and shot marks can be added to selected clips during and after a recording. This is helpful for editing recorded video.

In addition, you can use the copy function for each text memo block to take only the necessary portions out of a clip.

### ■ Front-mounted Sound Level Control Mechanism

The unit features a front-mounted control for fine adjustment of the sound recording level. This control is particularly effective for adjusting the sound level when you are shooting without a sound recordist. The control can be disabled. (Refer to page 17)

### ■ Support for Built-in Unislot Wireless Receive

The unit is designed to support an optional slot-in wireless receiver. (Refer to pages 120 and 199) The unit also supports 2-channel wireless receivers.

### ■ Recording Review Capability

This capability automatically plays back the last 2 to 10 seconds of recorded video, allowing you to quickly check the recorded contents.

### ■ Built-in Time Code Generator/reader

A special-purpose subcode track can be used to record and reproduce time code information.

### ■ Support for Metadata

The unit is capable of recording positional information (latitudes, longitudes and altitudes), as UMID information (metadata), from the GPS unit AJ-GPS910G (optional). Names/titles can also be recorded, e.g. the camera person, the reporter, or the program which was registered on the SD memory card in advance. This information is also useful in managing information on clips. Regarding SD memory cards, please also see <Cautions in using SD memory cards> (page 23).

### ■ Recording Time

Operation of the following P2 cards with the unit has been verified:

- AJ-P2C004HG (4 GB)
- AJ-P2C008HG (8 GB)
- AJ-P2C016RG (16 GB)
- AJ-P2C032RG (32 GB)
- AJ-P2C064AG (64 GB)

(The model numbers and capacities are accurate as of November 2008 but may change to expand capacity.)

The AJ-P2C002SG (2 GB) is disabled.

#### Recording Time on P2 Cards: When one 32 GB card is used;

Image system	Recording method and Recording time		
	DVCPRO HD	AVC-Intra100	AVC-Intra50
1080/59.94i / 50i	Approx. 32 min	Approx. 32 min	Approx. 64 min
1080/30PN / 25PN (Native)	–	Approx. 32 min	Approx. 64 min
1080/24PN (Native)	–	Approx. 40 min	Approx. 80 min

#### ◆ Notes

- The values for 8 GB and 16 GB P2 cards are 1/4 and 1/2 those of 32 GB cards shown above.
- If the one-time continuous recording exceeds the duration which is given in the table below when a P2 card with a memory capacity of 8 GB or more is used in the unit, the recording is automatically continued on a separate clip. When performing thumbnail operations (such as display, delete, repair or copy) for these kinds of clips using a P2 device, it is possible to perform the operations for the entire recording as a single clip. However, with nonlinear editing software or a PC, the recording may be displayed as separate clips.

Recording method (except for native)	Continuous recording time
DVCPRO HD	Approx. 5 min
AVC-Intra100	
AVC-Intra50	Approx. 10 min

**Approximate Proxy Recording Time (optional) on SD memory cards  
(Except for 24P native mode)**

Card No. (Card Capacity)	MPEG4 recording rate		
	192 kbps	768 kbps	1500 kbps
RP-SDH256 (256 MB)	Approx. 2 h 17 min	Approx. 35 min	Approx. 19 min
RP-SDH512 RP-SDK512 (512 MB)	Approx. 4 h 27 min	Approx. 69 min	Approx. 38 min
RP-SDQ01G RP-SDK01G (1 GB)	Approx. 8 h 56 min	Approx. 2 h 19 min	Approx. 77 min
RP-SDQ02G RP-SDK02G (2 GB)	Approx. 18 h 11 min	Approx. 4 h 44 min	Approx. 2 h 37 min
RP-SDV024G (SDHC 4 GB)	Approx. 35 h 42 min	Approx. 9 h 18 min	Approx. 5 h 12 min

(Reference values when Panasonic brand SD memory cards or SDHC memory cards are used for continuous recording. Actual recording time depends on the kind of scenes and the number of clips.)

The values for 8 GB and 16 GB SDHC memory cards are double and four times the values for the 4 GB card.

For the latest information on P2 cards and SD memory cards not available in the operating instructions, visit the P2 Support Desk at the following Web site.

<http://pro-av.panasonic.net/>

## Features of the Input/Output unit

### ■ Independent 3 system HD SDI output provided as standard configuration

HD SDI signals output from the HD SDI A · B connectors and MON OUT connector are independent to each other. HD SDI output includes embedded audio etc.

### ■ Dual Link compatible

The unit can be compatible to Dual Link using the HD SDI A connector and the HD SDI B connector. Link A will be output from the HD SDI A connector, and Link B from the HD SDI B connector.

Recording to the P2 card will be YPBPR 4:2:2 signal, and Dual Link signal format will be RGB 4:4:4.

### ■ Features USB 2.0 port (HOST/DEVICE)

By connecting with a PC via USB 2.0, a P2 card inserted in the unit can be used as a bulk storage device. Also, since this unit has a USB HOST capability, it is possible to store P2 card data on an external hard disk connected using USB 2.0, to view clips stored on the hard disk and to write clips stored on the hard disk to the P2 card.

### ■ Down converter output provided as a standard configuration

The MON OUT connector outputs down converter (analog composite) signals.

Also, output signal from the MON OUT connector can be switched between an HD SDI signal and a VBS signal.

### ■ Remote control connector

By connecting the remote control unit (AJ-RC10G), which is available as an optional accessory, the unit can be controlled remotely. (Refer to page 123)

### ■ Confirmation of return video signals

It is possible to confirm the return video signals (analog HD Y signals) supplied to the GENLOCK IN connector of the unit in the viewfinder to confirm programs.

Only video signals from the same record format can be confirmed. Note also that the 23.98PsF and 24PsF signals cannot be confirmed. (Refer to page 193)

### ■ DC OUT connector

The DC OUT connector of the unit produces 1.5 A of electrical current.

By connecting an external switch to this connector, it is possible to control recording start/stop.

Since a tally lamp can be used by connecting the LED to this connector, it is useful for shooting video when fixing the camera on a crane. (Refer to page 125)

## Other features

### ■ Viewfinder connection

From the viewfinder connector of the unit, 1080/59.94i, 1080/50i signals are output.

Confirm images in multi formats by connecting the viewfinder (AJ-HVF21G), which is available as an optional accessory. (Refer to page 29)

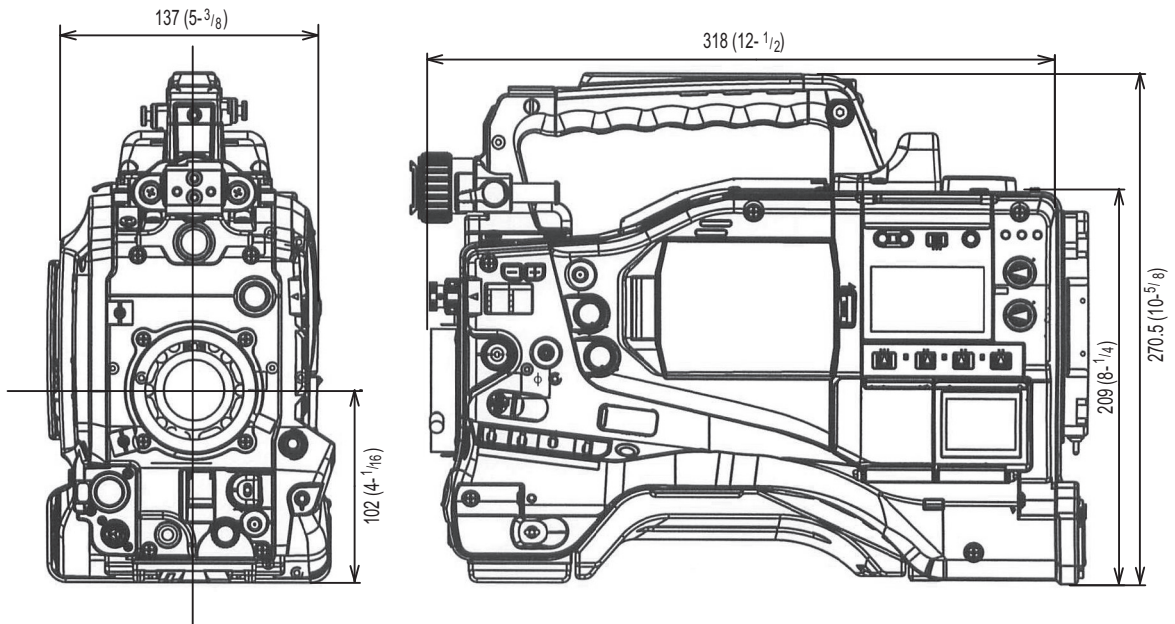
### ■ User button

On the side panel of the unit, 5 user buttons (USER MAIN/ USER 1/USER 2/MARKER SELECT/TEXT MEMO) are available.

Each user button can be assigned the on/off function for any frequently used feature among the many features of the unit, such as SLOT SEL and Y GET. (Refer to page 59)

# Dimensions drawing

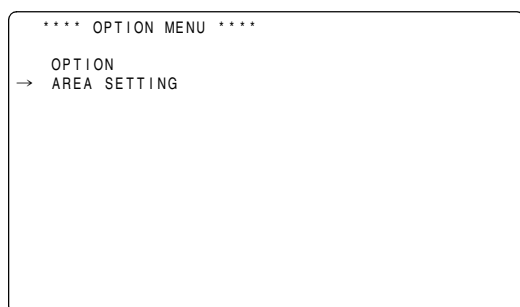
Unit: mm (inch)



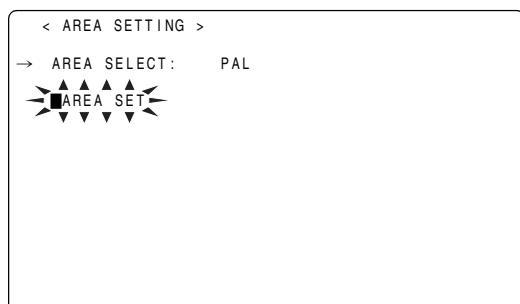
# Color TV Standard Settings (Settings for frame frequency)

The unit is delivered with the color TV standard not yet specified. To revise the settings for frame frequency according to the preferred standard, refer to the procedures described below.

- 1 After connecting the unit to the power supply and then turning on the power, press the MENU button while pressing the LIGHT button to open OPTION MENU.
- 2 Turn the jog dial button to move the cursor (arrow) to the AREA SELECT item on the <AREA SETTING> screen in OPTION MENU page, and then press the jog dial button.



- 3 Select the area among NTSC, NTSC (J), and PAL. After selecting the area by turning the jog dial button, press the jog dial button.



- 4 Move the cursor (arrow) to ■ AREA SET by turning the jog dial button, and then press the jog dial button. The following window appears.



- 5 Move the arrow (→) to YES and press the jog dial button. The settings selected in step 3 above are reflected in FACTORY and CURRENT data.
- 6 Turn off the power supply once and then turn on it again.

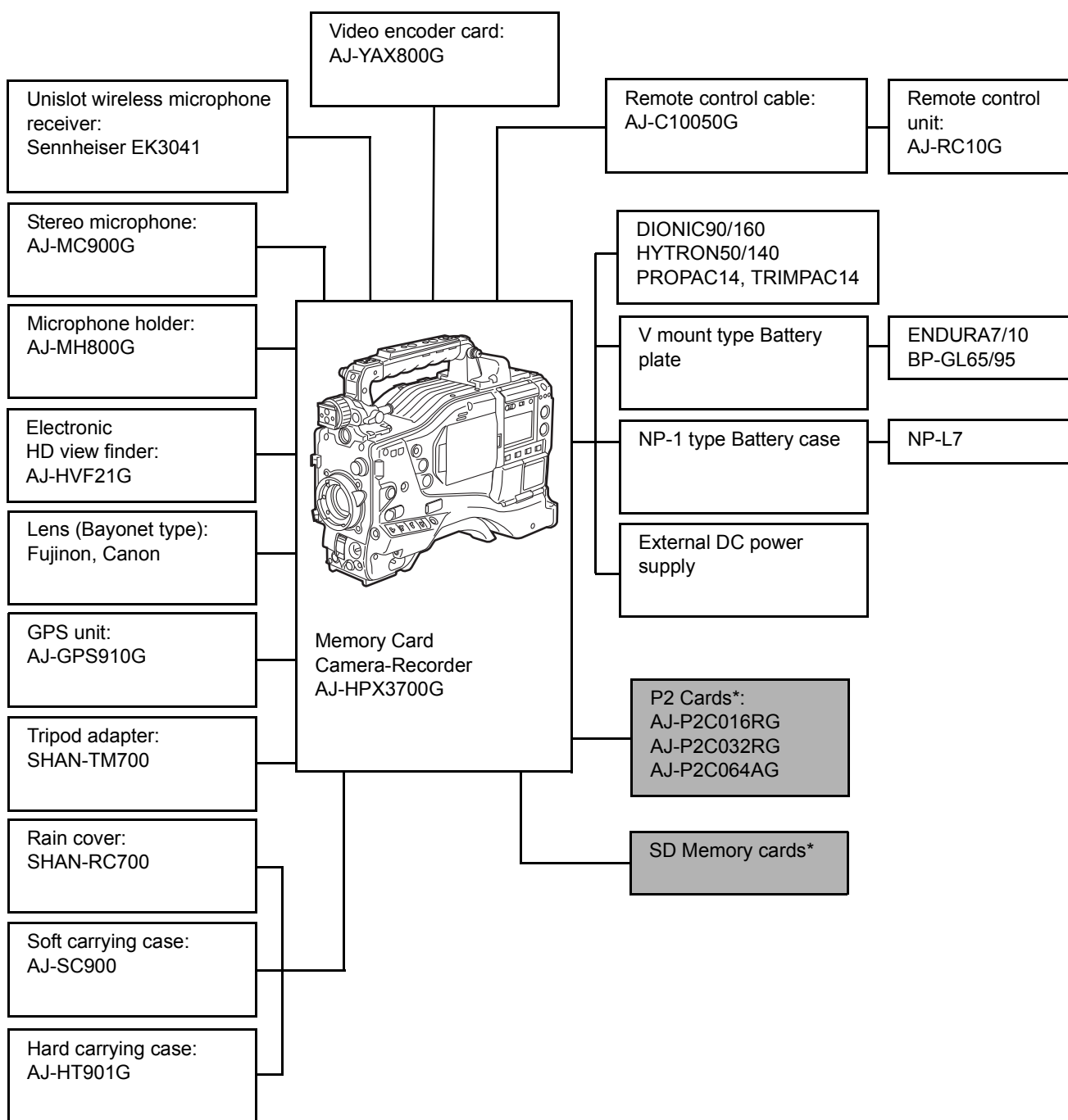
## ◆ Notes

- The settings are not saved unless AREA SET is executed even if NTSC, NTSC (J), or PAL is selected in the AREA SELECT.
- When AREA SELECT is revised, the “■ AREA SET” blinks.
- When these items are set when the unit is used for the first time, only the following 8 items are revised. When the other settings of the unit are set in MAIN MENU, the menu setting values for items other than the following 8 are ones that were set at the factory.

	Factory settings	NTSC	NTSC(J)	PAL
<b>SYSTEM MODE</b>	1080-59.94i	1080-59.94i	1080-59.94i	1080-50i
<b>REC FORMAT</b>	AVC-I 100 /24PN	AVC-I 100 /24PN	AVC-I 100 /24PN	AVC-I 100 /25PN
<b>FRAME RATE</b>	24FRAME	24FRAME	24FRAME	25FRAME
<b>USR SW F.RATE</b>	24FRAME	24FRAME	24FRAME	25FRAME
<b>REAR LINE IN LVL</b>	+4dB	+4dB	+4dB	0dB
<b>AUDIO OUT LVL</b>	+4dB	+4dB	+4dB	0dB
<b>HEADROOM</b>	20dB	20dB	20dB	18dB
<b>GUI metadata language indication</b>	American English	American English	Japanese/ For Japan	American English
<b>LANGUAGE</b>	Not displayed	Not displayed	ENGLISH JAPANESE	Not displayed
<b>DATE FORMAT*1</b>	M-D-Y	M-D-Y	Y-M-D	D-M-Y

\*1 Select THUMBNAIL → SETUP → DATE FORMAT from the thumbnail menu. For details refer to [Setting the Thumbnail Display Mode] (page 142).

# System Configuration



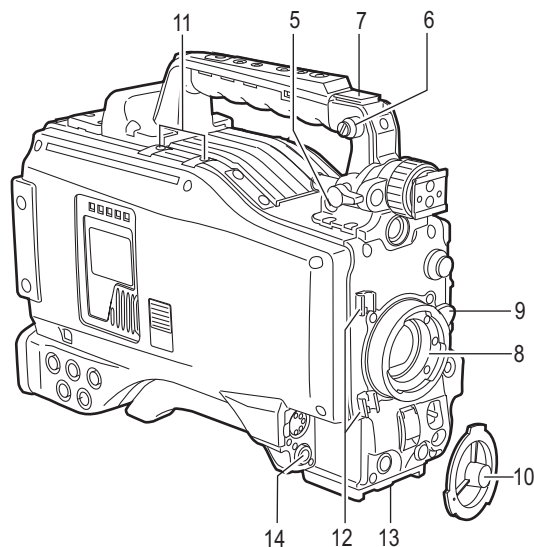
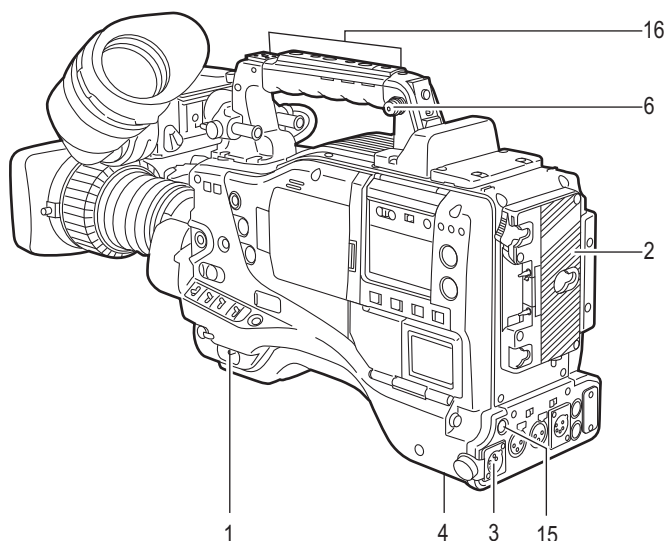
\* For the latest information on P2 cards and SD memory cards not available in the operating instructions, visit the P2 Support Desk at the following Web site.  
<http://pro-av.panasonic.net/>

◆ **Note**

All of the devices and accessories other than the unit, which are shown in this system configuration, are optionally available. To use these devices and accessories, refer to the respective operation manuals.

# Parts and their Functions

## Power Supply and Accessory Mounting Section



### 1. POWER switch

Used to turn on/off the power.

### 2. Battery mount

A battery pack from Anton/Bauer is mounted here.

### 3. DC IN (external power input) socket (XLR, 4P)

The unit is connected to an external DC power supply.

### 4. BREAKER switch

When an excessive amount of current is fed through the unit, due to any abnormal event, the breaker automatically turns off the power in order to protect the device.

After the interior of the unit has been checked and/or repaired, this button must be depressed. If there is no unusual reaction, the unit can be powered-up.

### 5. GPS connector

This connects the optional GPS unit AJ-GPS910G.

### 6. Shoulder strap fittings

The shoulder strap is attached here.

### 7. Light shoe

A video light or similar accessory can be attached here.

### 8. Lens mount (bayonet 2/3-type)

The lens is attached here.

### 9. Lens lever

Lower this lever to lock the lens to the lens mount.

### 10. Lens mount cap

To remove the cap, raise the 9. Lens lever.  
When the lens is not mounted, replace the cap.

### 11. Light cable clamp

Secures the light cable.

### 12. Lens cable/microphone cable clamp

This clamp secures the lens and microphone cables.

### 13. Tripod mount

When you want to mount unit on a tripod, the optional tripod adapter (SHAN-TM700) is attached here.

### 14. LENS jack (12-pin)

The lens connection cord is connected here. For a detailed description of your lens, see the relevant manufacturer's instruction manual.

### 15. DC OUT (DC power supply output) socket

This output socket is designed for 12 V DC. It provides a maximum current of 1.5 A.

Connect an external switch to this socket to control recording starts and stops or an LED for use as a tally lamp. For more information, see [Connection of the DC OUT connector and External REC start/stop switch] (page 125).

#### ◆ Note

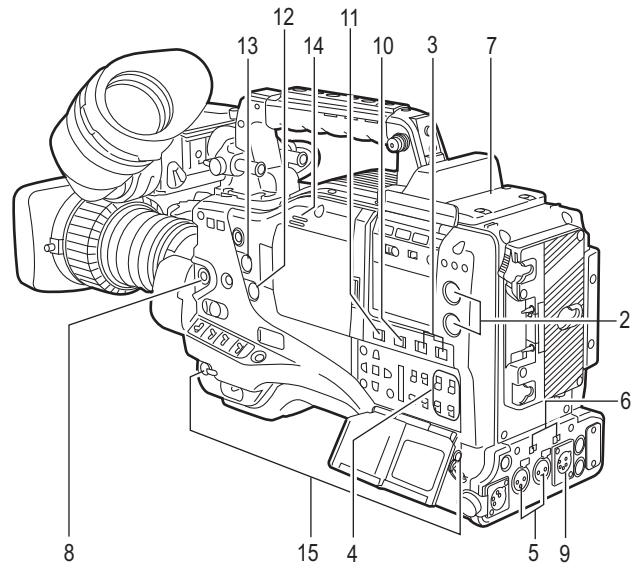
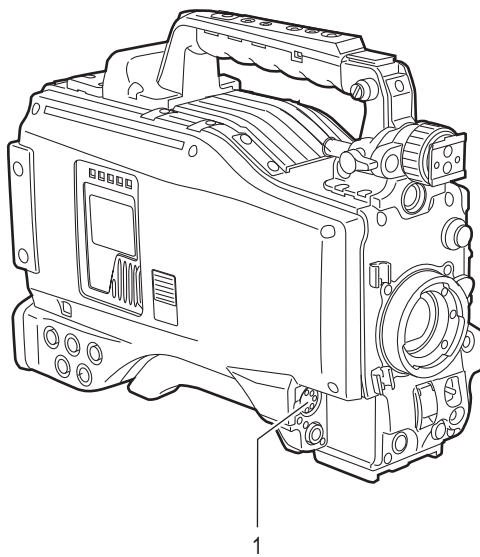
Make sure the total of current output from DC OUT, REMOTE, VF, and LENS connector do not exceed 2.5 A.

### 16. Accessory mounting holes (handle)

Use these holes to mount accessories. These holes should not be used for any other purpose.



# Audio (input) Function Section



## 1. MIC IN (microphone input) jack (XLR, 5-pin)

A microphone (optional) is connected here. Power can be supplied via this jack to allow use of a phantom microphone. Note that the FRONT MIC POWER menu option must be set to "ON" when using a phantom microphone.

These options are found in the <MIC/AUDIO2> screen on the MAIN OPERATION page.

## 2. AUDIO LEVEL CH1/CH2 (audio channel 1 & 2 recording level adjustment) controls

With the 3. AUDIO SELECT CH1/CH2 switch positioned to [MAN], these controls can be used to adjust the recording levels for audio channels 1 and 2.

Note that the controls are designed to be locked. For adjustment, each control must be depressed while turning.

## 3. AUDIO SELECT CH1/CH2 (audio channel 1 & 2 automatic/manual level adjustment selector) switch

Use this switch to select recording level control mode for audio channels 1 and 2.

**AUTO:** Recording level automatically controlled.

**MAN:** Recording level manually controlled.

## 4. AUDIO IN (audio input selector) switch

Use this switch to select the signals recorded through audio channels 1 - 4.

**FRONT:** Signal from the microphone connected to the 1. MIC IN jack is recorded.

**W.L. (WIRELESS):**

Signal from the slot-in wireless receiver is recorded.

**REAR:** Signal from the audio device connected to the 5. AUDIO IN CH1/CH2 connector is recorded.

### ◆ Note

When you use stereo microphone (AJ-MC900G, optional), set both CH1 and CH2 to [FRONT]. The signal from L CH is recorded to CH1 and that from R CH to CH2.

## 5. AUDIO IN CH1/CH2 (audio input channel 1 & 2) connectors (XLR, 3-pin)

Audio devices or a microphone may be connected here.

## 6. LINE/MIC/+48V (line input/mic input/mic input +48 V) selector switch

Used to select the audio signal input from the 5. AUDIO IN CH1/CH2 connectors.

**LINE:** Audio signal line-input from the audio device is input.

**MIC:** Audio signal from a self-powered (active) microphone is input. (Power for a phantom microphone is not supplied to the microphone from the unit.)

**+48V:** Audio signal from a passive microphone is input. (Power for a phantom microphone is supplied to the microphone from the unit.)

## 7. Wireless slot

A Unislot wireless receiver (optional) may be attached here.

## 8. FRONT AUDIO LEVEL (audio recording level adjustment) control

This control adjusts the recording levels for audio channels 1 and 2.

However, when the 3. AUDIO SELECT CH1/CH2 switch is set to [AUTO], the level will adjust automatically and the 2. AUDIO LEVEL CH1/CH2 knob and this knob will not be active.

The control can be enabled or disabled through the menu options FRONT VR CH1 or FRONT VR CH2. These options can be found in the <MIC/AUDIO1> screen on the MAIN OPERATION page.

# Audio (output) Function Section

## 9. AUDIO OUT connector (XLR, 5-pin)

This connector outputs audio signals recorded on Channels 1/2 or 3/4.

Output signals are selected with the 10. MONITOR SELECT CH1/2 / CH3/4 selector switch.

## 10. MONITOR SELECT (audio channel selection) CH1/2 / CH3/4 selector switch

Use this switch to select the audio channel whose signals are output to the speakers, earphones or AUDIO OUT connector.

**CH1/2:** Signals on audio channels 1 and 2 are output.

**CH3/4:** Signals on audio channels 3 and 4 are output.

The channel indications on the display window and on the audio level meter in the viewfinder are synchronized with this selector switch.

## 11. MONITOR (audio selection) CH1/3 / ST / CH2/4 selector switch

Use this switch in combination with the MONITOR SELECT switch to select the audio channels whose signals are output to the speakers, earphones, or AUDIO OUT connector.

**CH1/3:** Signal on audio channel 1 or 3 is output.

**ST:** Stereo audio signals on audio channels 1 and 2 or audio channels 3 or 4 are output. The stereo signals can be changed to mixed signals using a menu option.

**CH2/4:** Signal on audio channel 2 or 4 is output.

MONITOR switch	MONITOR SELECT switch	
	CH1/2	CH3/4
CH1/3	Audio channel 1	Audio channel 3
ST	Stereo signals from audio channels 1 and 2*	Stereo signals from audio channels 3 and 4*
CH2/4	Audio channel 2	Audio channel 4

\* You can select between stereo and mixed signal types using the menu option MONITOR SELECT. This menu option can be found in the <MIC/AUDIO2> screen on the MAIN OPERATION page.

## 12. MONITOR (volume) control

Used to control the volume of sound output from the monitor speakers and earphones.

## 13. ALARM (warning alarm volume adjustment) control

Used to control the volume of the warning sound emitted from 14. Speakers or earphones connected to the 15. PHONES jack.

If the control is minimized, no alarm is audible.

## 14. Speakers

The speakers output EE sound during recording, and reproduced sound during playback.

The speakers emit an alarm sound when the warning lamp blinks and/or the indicator activates.

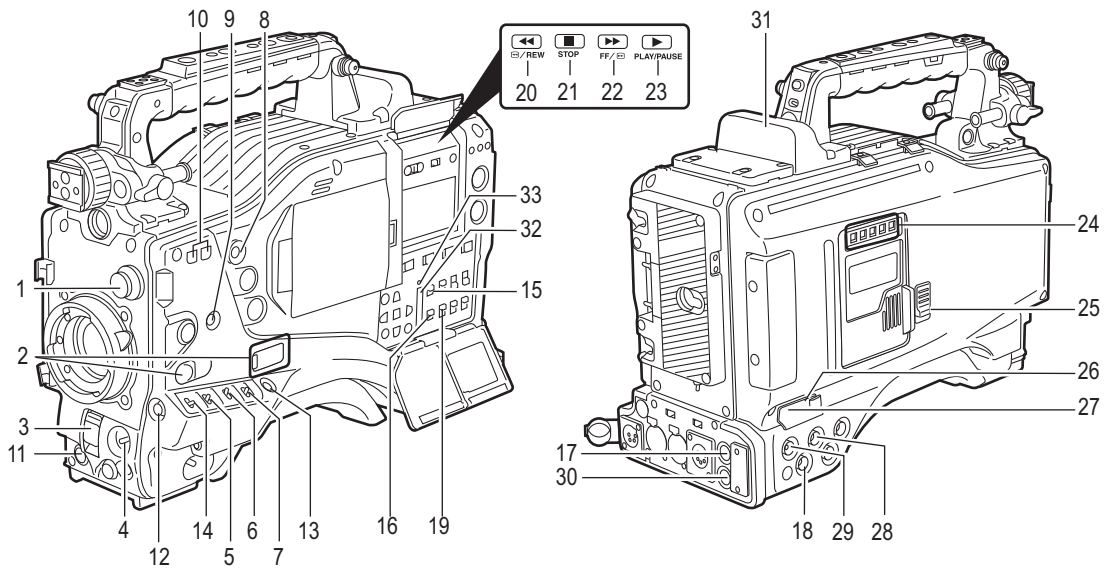
When the 15. PHONES jack is connected with earphones, sound from the speaker is automatically muted.

## 15. PHONES (earphones) jack (mini jack)

This connector is designed for audio monitoring (stereo) earphones. When earphones are connected, sound from the speakers is automatically muted.

Both the front and rear connectors output the same sound.

# Shooting and Recording/Playback Functions Section



## 1. CC/ND FILTER (filter switching) controls

These are used to select the filter in accordance with the subject's brightness and color temperature.

### CC FILTER knob (outside, large diameter)

- A: 3200 K
- B: 4300 K
- C: 5600 K
- D: 1/2 ND

### ND FILTER knob (inside, small diameter)

- 1: CLEAR (transparent)
- 2: 1/4 ND
- 3: 1/16 ND
- 4: 1/64 ND

When D (1/2 ND) is selected on CC FILTER, it is possible to select any of 1/2 ND to 1/128 ND in combination with ND FILTER.

Shooting conditions	CC FILTER	ND FILTER
Sunrise, sunset, inside a studio	A (3200 K)	1 (CLEAR)
Outdoors under a clear sky	B (4300 K) or C (5600 K)	2 (1/4 ND) or 3 (1/16 ND)
Outdoors under cloudy or rainy skies	C (5600 K)	1 (CLEAR) or 2 (1/4 ND)
Snowscapes, high mountains, seashores or other perfectly clear scenery	B (4300 K) or C (5600 K)	3 (1/16 ND) or 4 (1/64 ND)

## 2. USER MAIN, USER 1 and USER 2 buttons

These buttons can be assigned user-selected functions, using a menu option. Each button, when pressed, performs the assigned function.

For more information, see [Assigning Functions to User Buttons] (page 59).

## 3. SHUTTER switch

Used to enable or disable the electronic shutter.

- OFF:** Electronic shutter disabled.
- ON:** Electronic shutter enabled.
- SEL:** Used to change the speed of the electronic shutter.

This dial switch returns to its original position. Each turn of the switch alters the shutter speed. For more information, see [Setting the Electronic Shutter] (page 56).

## 4. AUTO W/B (white/black) BAL switch

- AWB:** White balance is automatically adjusted. When the WHITE BAL switch on the side is positioned at [A] or [B], the adjusted value is stored in the memory. Note that when the WHITE BAL switch is positioned at [PRST] this function does not work.
- ABB:** Black balance is automatically adjusted.

### ◆ Note

To stop automatic adjustment of the white or black balance in progress, set the switch to either ([AWB] or [ABB]). If automatic adjustment is canceled, the value in effect before automatic adjustment will be used.

## 5. GAIN selector switch

Use this switch to select video amplifier gain, according to lighting conditions under which you are shooting. The values for [L], [M], and [H] can be preset using menu options. These are factory-set to “0 dB” for [L], “3 dB” for [M], and “6 dB” for [H].

## 6. OUTPUT/AUTO KNEE selector switch

Used to select the video signals sent from the camera unit to the memory, viewfinder and video monitor.

### CAM/AUTO KNEE ON:

Video being recorded through the camera is sent with the auto knee circuit activated. It is also possible to assign the DRS (Dynamic Range Stretcher) function instead of the AUTO KNEE function.

### CAM/AUTO KNEE OFF:

Video being recorded through the camera is sent in manual knee mode.

**BARS:** Color bar signal is output. The auto knee circuit does not work.

You can select between 3 types of color bar signal. For more information, see [SW MODE] (page 193).

### AUTO KNEE function

Usually, when you adjust levels to shoot people or scenery against a strongly lit background, the background will be totally whited-out, with buildings and other objects blurred. In this case, the auto knee function reproduces the background clearly. This function is effective when:

- The subject is a person positioned in the shade under a clear sky.
- The subject is a person inside a car or building, and you also want to capture the background visible through a window.
- The subject is a high-contrast scene.

## 7. WHITE BAL (white balance memory selector) switch

Used to select the white balance adjustment method.

**PRST:** Use this when you have no time to adjust the white balance. The value for the white balance is factory-set to 3200 K. It can be changed to any color temperature using a menu option. For more information, see [Setting Color Temperature Manually] (page 54).

**A or B:** Pressing the 4. AUTO W/B BAL switch toward [AWB] automatically adjusts the white balance, saving the adjusted value in memory A or B. For more information, see [Adjusting the White Balance] (page 52).

## 8. MODE CHECK button

Each press of this button changes the screen type in the viewfinder in the following order: STATUS, !LED, FUNCTION, AUDIO, CAC, USER SW.

This does not affect the signal output from the camera. Display will disappear in about 5 seconds. It will continue to display while pressing this button with selected screen displayed.

## 9. MARKER SELECT button

This button selects the marker information indicated on the viewfinder screen. It switches between two marker information indications, which can be selected using a menu option. Pressing this button once switches the indicated marker information from A (Marker A) to B (Marker B), and pressing again switches B to off (no marker). When the power is turned on, the last selected indication before power-down appears.

For more information, see [Marker Check Screen Displays (MARKER SELECT button function)] (page 87).

Also, with appropriate menu settings, the MARKER SELECT button can be used as a USER 3 button. For more information on user buttons, refer to [Assigning Functions to User Buttons] (page 59).

## 10. SYNCHRO SCAN adjustment buttons

These buttons are enabled when the 3. SHUTTER switch is positioned at [ON] and synchro scan is selected.

They are used to adjust the speed of the synchro scan. The – button decreases shutter speed; the + button increases shutter speed.

If you shoot a PC monitor, for example, you should adjust shutter speed so that the horizontal bars in the viewfinder will produce less noise.

This button can be used for changing the frame rate during the VFR.

## 11. REC START button

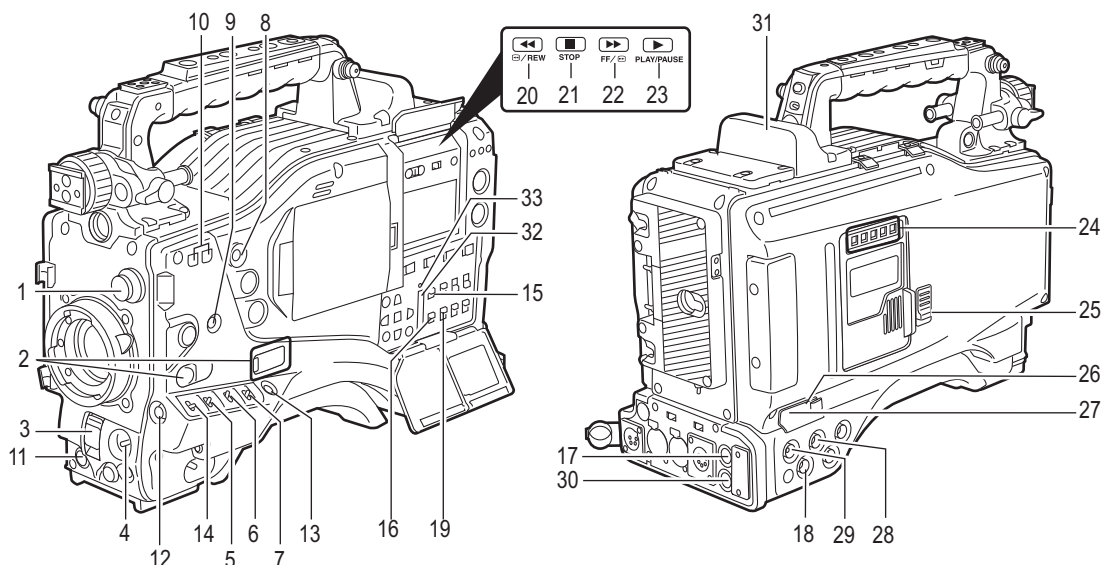
Pressing this button starts recording, pressing again stops recording.

This button has the same function as the VTR button at the lens.

## 12. SHOT MARKER/MENU CANCEL button

Pressing this button while recording adds a shot mark to the thumbnail of that clip. This button also adds a shot mark to any thumbnail selected on the LCD monitor. For more information on shot marks, see [Shot Mark Function] (page 48).

This button cancels the revised set value when the menu is displayed.



### 13. TEXT MEMO button

Records a text memo if pressed during recording or playback or when playback is paused. Also, with appropriate menu settings, the TEXT MEMO button can be used as a USER 4 button. For more information on user buttons, refer to [Assigning Functions to User Buttons] (page 59)

### 14. SAVE ON/OFF switch

Used to select the power supply method for each output section.

**ON:** The output selected through the menu option SAVE SW is power-saved. This option can be found on the <OPTION MODE> screen on the SYSTEM SETTING page.

**OFF:** Power saving is canceled.

#### ◆ Note

The ON/OFF switch does not function during recording. The ON/OFF status changes after recording is completed.

### 15. HD SDI A · B (output signal selector) switch

Changes the mode of the signals output through the HD SDI A · B connector.

**MEM:** Video from the camera is output during recording and when recording is paused. Playback signals are output from the P2 card during playback.

**CAM:** Video from the camera is output constantly.

**OFF:** Video is not output, and the unit operates in power-saving mode.

Note that the audio output is synchronized with the video.

For types of video outputs, refer to [Settings of signals output from HD SDI A · B connector] (page 89) and [Settings of signals output from MON OUT connector] (page 90).

### 16. MON OUT CHARACTER switch

This switch controls the superimposition of characters onto the video output from the MON OUT connector.

**ON:** Characters are superimposed.

**OFF:** Characters are not superimposed.

For types of characters, see [Settings of signals output from MON OUT connector] (page 90).

### 17. HD SDI A connector

This connector is for outputting video. A video signal based on the setting of the 15. HD SDI A · B switch is output. Link A signal is output while in Dual Link output.

#### ◆ Note

Camera image is output from the HD SDI A connector even during playback while in Dual Link (RGB 4:4:4) output.

### 18. MON OUT (monitor output) connector

The MON OUT connector is used for outputting video for the monitor. The output signal can be switched between a down-converted (analog composite) signal and an HD SDI signal. This connector outputs video based on the setting of the 19. MON OUT SEL (output signal selection) switch. Through an internal menu option, the characters can be superimposed independently of the HD SDI A · B connector. For more information, refer to [Settings of signals output from MON OUT connector] (page 90).

## 19. MON OUT SEL (output signal selection) switch

Used to switch the signals output from the MON OUT connector.

**MEM:** Video from the camera is output during recording or when recording is paused or playback signals are output from the P2 card during playback.

**CAM:** Video from the camera is output constantly.

**OFF:** Video is not output, and the unit operates in power-saving mode.

Note that the audio output is synchronized with the video.

For types of video outputs, see [Settings of signals output from HD SDI A · B connector] (page 89) or [Settings of signals output from MON OUT connector] (page 90).

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### ◆ Notes

- During recording, this switch does not switch output signals before stopping the recording operation.
- Only a brightness signal is output in 1080/24PsF when MONITOR OUT is set to "VBS". MONITOR OUT can be selected from the screen <OUTPUT SEL> in the SYSTEM SETTING page.

## 20. REW (rewind) button and lamp

During stop, this button performs a fast-reverse playback with the lamp lights on.

During playback, it performs an approximately 4× fast-reverse playback with the PLAY and REW lamps lights on.

If this button is pressed when playback is paused, the start of the clip being played back is located in pause mode.

## 21. STOP button

This button stops playback.

## 22. FF (fast forward) button and lamp

During stop, this button is used to perform fast playback with the lamp lights on.

During playback, it performs an approximately 4× fast playback with the PLAY and FF lamps lights on.

If this button is pressed when playback is paused, the start of the next clip is located in pause mode.

## 23. PLAY/PAUSE button

This button is used to view playback using the viewfinder screen or a color video monitor. The lamp comes on when playback starts.

In playback mode, this button pauses (PLAY/PAUSE) playback with the lamp blinking.

## 24. P2 card access LED

This LED indicates the recording and playback status of each card.

## 25. Slide lock button

Used to open the slide-out door for inserting P2 cards. While depressing this button, slide the door to the left.

## 26. USB 2.0 connector (DEVICE)

### 27. USB 2.0 connector (HOST)

A USB 2.0 cable is connected here.

When the menu option PC MODE is set to "ON", data can be transferred via USB 2.0. During such data transfer, recording, playback or operations of clips is limited.

The menu option PC MODE is found in the <SYSTEM MODE> screen on the SYSTEM SETTING page. For more information, see [Connection with external devices using the USB 2.0 port] (page 147).

## 28. GENLOCK IN connector

Used to input an HD Y signal when GENLOCKing the camera or externally locking the time code. Alternatively, a composite signal can be input as the reference signal. Note that the subcarriers for the down-converter (composite signal) output from the unit cannot be externally locked.

---

### ◆ Note

When HD Y signal is input and the menu option RET SW is set to "CAM RET", you can check return video on the viewfinder screen. The menu option RET SW can be found in the <SW MODE> screen on the CAM OPERATION page.

## 29. HD SDI B connector

This connector is for outputting video. A video signal based on the setting of the 15. HD SDI A · B switch is output. LinK B signal is output while in Dual Link output.

---

### ◆ Note

Camera image is output from the HD SDI B connector even during playback while in Dual Link (RGB 4:4:4) output.

## 30. REMOTE (remote control) connector

The remote control unit AJ-RC10G (optional) is connected here.

## 31. Option slot

Attach the video encoder card (AJ-YAX800G, optional). For information about the installation and proxy recording, see the AJ-YAX800G instruction manual.

### 32. SD memory card insertion slot

An SD memory card (optional) is inserted here. SD memory cards are used for recording and accessing the menu settings of cameras and the lens files, uploading metadata, and proxy recording (optional).

#### <Cautions in using SD memory cards>

Use the unit by inserting an SD memory card that is compliant with the SD standard or the SDHC standard. MultiMediaCards cannot be used. (Bear in mind that recording may no longer be possible if you do use them.)

If you intend to use miniSD cards in unit, always install the adapter specially designed for miniSD cards. (The unit will not work properly if only the miniSD card adapter is installed. Make sure that the card has been installed in the adapter before using it.)

Use of Panasonic's SD memory cards and miniSD cards is recommended. Be sure to format cards using unit.

Any SD memory card and SDHC memory card with the following capacities can be used with the unit.

SD memory card	8 MB, 16 MB, 32 MB, 64 MB, 128 MB, 256 MB, 512 MB, 1 GB, 2 GB
SDHC memory card	4 GB, 8 GB, 16 GB, 32 GB

To record proxy (optional), use an SD memory card with a capacity of 256 MB, 512 MB, 1 GB, or 2 GB labeled "High Speed" or use an SDHC memory card.

For the latest information not available in the operating instructions, visit the P2 Support Desk at the following Web site.

<http://pro-av.panasonic.net/>

- The SDHC card conforms to a new standard for memory cards with a large capacity of more than 2 GB which was established by the SD Association in 2006.
- The SD card logo is a registered trademark.
- MMC (MultiMediaCard) is a registered trademark of Infineon Technologies AG.

### 33. Busy (operation mode display) lamp

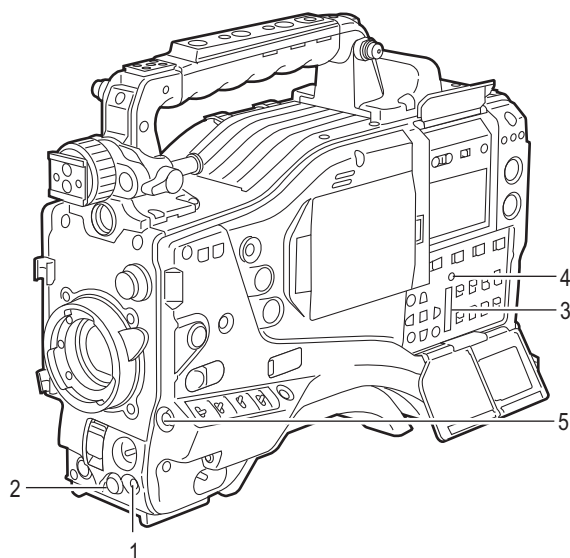
This lamp indicates the active status of the SD memory card.

It stays illuminated when the card is active.

#### ◆ Note

While the lamp is on, do not insert or remove the card.

# Menu Operation Section



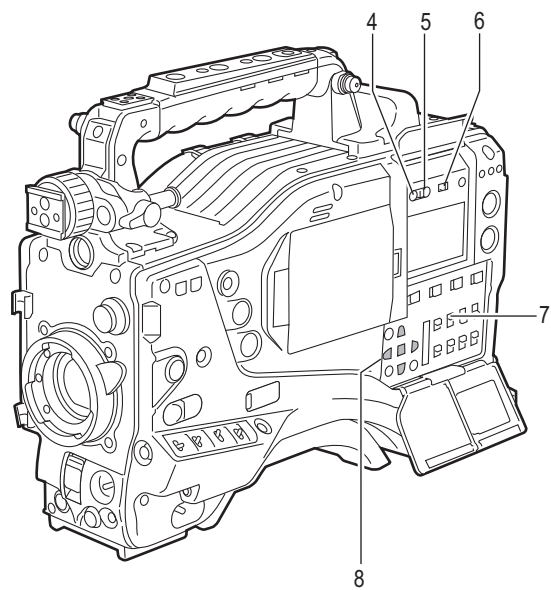
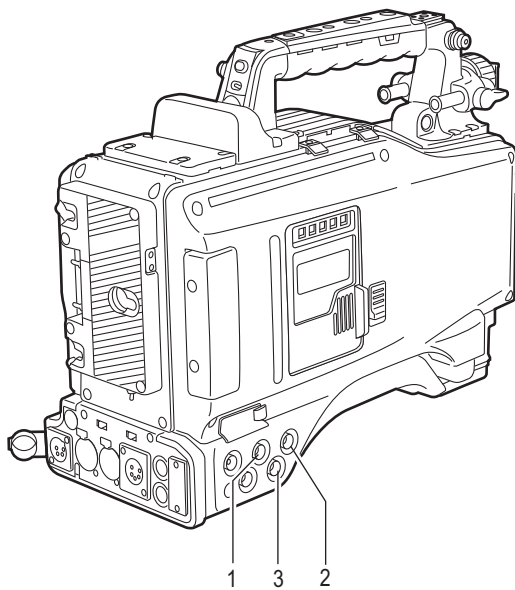
- 1. MENU button**  
Used to turn on/off the menu.
- 2. SELECT (Jog dial) button**  
With the menu open, this button is used to navigate through menu pages, select options and specify values. For directions on manipulating the menu, see [Menu Configuration] (page 166).
- 3. SD memory card insertion slot**  
An SD memory card (optional) is inserted here. It is used when writing or saving menu data or lens files on an SD memory card.
- 4. Busy (operation mode display) lamp**  
This lamp indicates the active status of the SD memory card. It stays illuminated when the card is active.

---

**◆ Note**  
While the lamp is on, do not insert or remove the card.
- 5. SHOT MARKER/MENU CANCEL button**  
Undoes any changes to the menu option settings if pressed during the changes.



# Time Code Section



## 1. GENLOCK IN connector (BNC)

This connector is used to input a reference signal before the camera unit is gen-locked, or before the time code is externally locked.

## 2. TC IN connector (BNC)

This connector is used to input a reference time code when you externally lock the time code.

## 3. TC OUT connector (BNC)

When you inter-lock the time code of unit with that of an external device this must be connected with the time code input (TC IN) connector of the external device.

### ◆ Note

The time code must be input in the same format as the system mode of the unit.

## 4. HOLD button

Pressing this button freezes the time data indication on the counter. Note that time code generation continues. Pressing the button again reactivates the counter. This function is used to ascertain the time code or CTL count of a particular recorded scene.

## 5. RESET button

This button resets the time data (CTL) on the counter to "00:00:00:00".

If this button is pressed when with the 7. TCG switch positioned at [SET], time code and user bits data are reset to 0, and real-time data is reset to the initial value.

## 6. DISPLAY (counter display selector) switch

Indications of the time code, CTL and user bits on the counter of the display window depend on the positions of this switch and the 7. TCG switch. Pressing the 4. HOLD button also displays Date/Time/Time Zone.

**UB:** User bits, DATE, TIME or Time zone indicated.

**TC:** Time code indicated.

**CTL:** CTL indicated.

## 7. TCG (time code selector) switch

This switch is used to specify the stepping mode for the built-in time code generator.

**F-RUN:** Select this position to continuously advance the time code independently of the P2 card recording status.

Use this mode to synchronize the time code with the time of day, or to externally lock the time code.

**SET:** Select this position to set the time code and/or user bits.

**R-RUN:** Select this position to advance the time code only during recording.

For spliced scenes recorded on P2 cards, the sequence of time codes is unbroken.

### ◆ Note

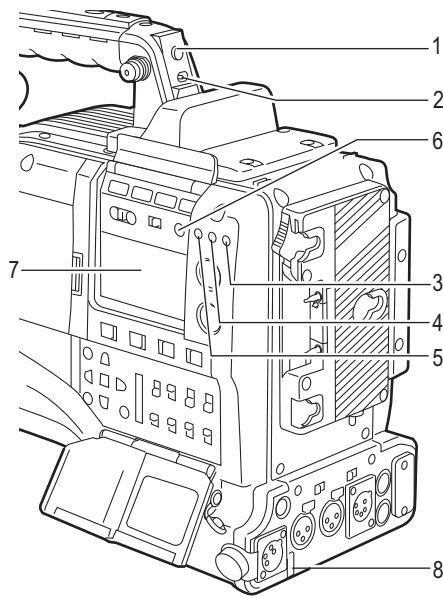
When VFR is used during native recording, VFR is carried out with fixed R-RUN even when F-RUN has been set.

## 8. Cursor and SET buttons

Use these buttons to set the time code and user bits. The 4 triangular buttons are the cursor buttons, and the center rectangular one is the SET button.

For guidance in setting the time code and user bits, see [Setting Time Data] (page 63).

# Warning and Status Display Functions



## 1. Back tally lamp

When the 2. BACK TALLY switch is set to [ON], the lamp behaves in the same way as the front tally lamp at the viewfinder.

## 2. BACK TALLY switch

This switch controls the action of the 1. Back and 8. Rear tally lamps.

**ON:** Back and rear tally lamps enabled.

**OFF:** Back and rear tally lamps disabled.

## 3. WARNING lamp

This lamp starts blinking or lights up if something unusual occurs in the memory.

## 4. USB lamp

Stays on when the unit is in USB mode.

## 5. ACCESS lamp

Blinks when the unit is in recording or playback mode or when a P2 card is being accessed, or stays on when a recordable P2 card is inserted.

## 6. LIGHT button

Use this button to control illumination of the display window.

Alternately pressing this button toggles illumination of the 7. Display window on or off.

## 7. Display window

This window displays warnings, battery-remaining level, sound volume, time data, and other information.

### ◆ Note

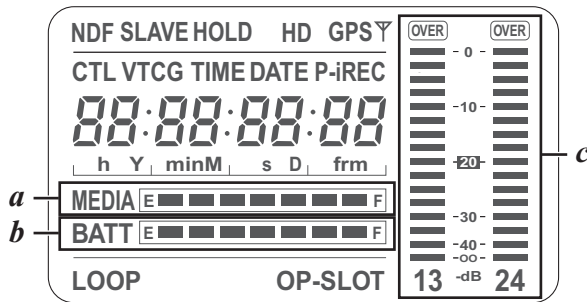
When the battery is installed, the unit indicates the data even if the power is turned off. To turn off the data indications to keep the battery from being discharged, specify "OFF" for the menu option P. OFF LCD DISPLAY found in the <TC/UB> screen on the MAIN OPERATION page.

## 8. Rear tally lamp

When the 2. BACK TALLY switch is set on [ON], the rear tally lamp behaves in the same way as the back tally lamp.

# Display Window Functions

P2 card/battery-remaining level and audio level indications



## a. Media-remaining space indication bar

The bar indicates the remaining free space on each P2 card, using a 7-segment display. Each segment can represent either 3 or 5 minutes of remaining free space, depending on the value set through the menu option CARD REMAIN/■. According to the set value, the segments disappear one-by-one. The menu option CARD REMAIN/■ can be found in the <BATTERY/P2CARD> screen on the MAIN OPERATION page.

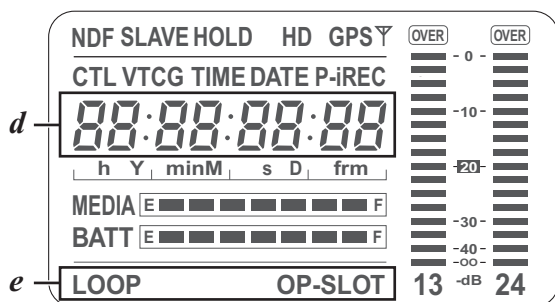
## b. Battery-remaining level indication bar

For a battery with a digital indicator (percentage indication), if the remaining level of the battery is higher than 70%, all 7 segments up to the "F" position are lit. When the remaining level falls below 70%, the segments go out one-by-one for each drop of 10%. All 7 segments can be set to light up when the battery-remaining balance is 100%. To do so select "100%" for the menu option BATT REMAIN FULL in the <BATTERY/P2CARD> screen of the MAIN OPERATION page.

## c. Audio channel level meter

When the MONITOR SELECT CH1/2 / CH3/4 switch is set to [CH1/2], the meter indicates 1 and 2 as the audio channel numbers, together with their audio levels. When the switch is set to [CH3/4], the meter indicates 3 and 4 as the audio channel numbers, together with their audio levels.

Memory action status indication

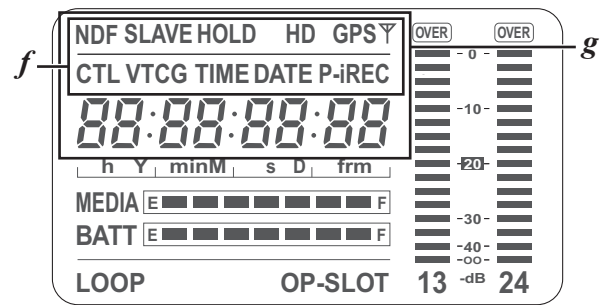


## d. Error Code Indication (for more information, see [Warning System] (page 160))

## e. Information indication

**LOOP:** Stays illuminated in LOOP REC mode. For information about the LOOP REC mode, see [Loop Recording] (page 43).

**OP-SLOT:** Remains illuminated when a video encoder card is operated in the optional slot.



## f. Mode indication

**HD:** Stays illuminated when the unit is in HD mode.

**GPS:** Stays illuminated when radio waves are not received during GPS operation.

**GPS ∇:** Stays illuminated when radio waves are received during GPS operation.

**P-REC:** Stays illuminated when the PRE REC MODE is set to "ON", and blinks when recording is continued after the recording tally lamp has gone out.

**iREC:** Remains illuminated during INTERVAL REC mode recording, and blinks during a pause.

**i:** Blinks when INTERVAL REC mode is selected.

## g. Time code indication

**NDF:** Stays illuminated when the time code is in non-drop frame mode.

**DF:** Stays illuminated when the time code is in drop frame mode.

**SLAVE:** Stays illuminated when the time code is externally locked.

**HOLD:** Stays illuminated when the time code generator/reader value is frozen.

**CTL:** Stays illuminated when the DISPLAY switch is positioned at [CTL] to display the CTL count.

**TCG:** Stays illuminated when the DISPLAY switch is positioned at [TC] (or [UB]) to display the TC (or UB) generator value.

**TC:** Stays illuminated when the DISPLAY switch is positioned at [TC] (or [UB]) to display the TC (or UB) reader value.

**VTCG:** Stays illuminated when the DISPLAY switch is positioned at [UB] to display the VIUB generator value.

**VTC:** Stays illuminated when the DISPLAY switch is positioned at [UB] to display the VIUB reader value.

**TIME:** Stays illuminated when the DISPLAY switch is positioned at [UB] to display the real-time hour, minute and second.

**DATE:** Stays illuminated when the DISPLAY switch is positioned at [UB] to display the real-time date.

**No Indication:** The VTCG, TIME, and DATE stay off when the DISPLAY switch is positioned at [UB] to display real time, time zone, hour and minute.

**Time count indication:** The time code, user bits, CTL and real time are shown.

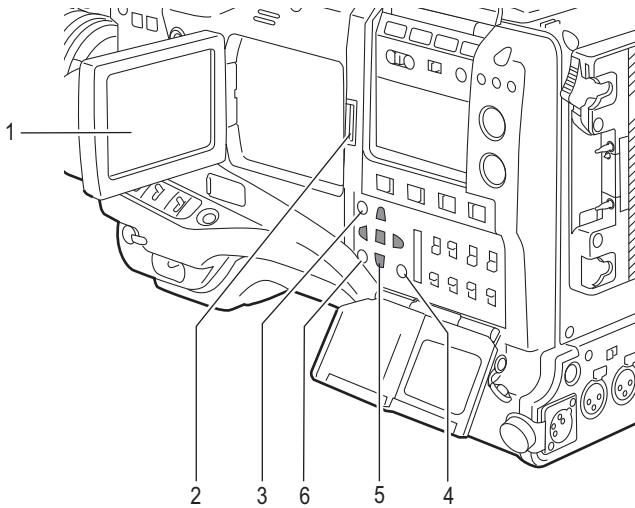
## ◆Note

When the DISPLAY switch is positioned at [UB], each press of the HOLD button changes the indication through VTCG (VTC) → DATE → TIME → No Indication (Time Zone) → TCG (TC), in that order.

Positions of time code-related switches and information provided

Position of DISPLAY switch	Position of TCG switch	Information Item
CTL	SET	Time code
	F-RUN or R-RUN	CTL
TC	F-RUN/SET/ R-RUN	Time code
UB		User bits or real-time, time zone

# LCD Monitor



**1. LCD monitor**

The LCD monitor displays the video in the viewfinder. Alternatively, it can show clips on the P2 card in a thumbnail format. In thumbnail display mode, clips can be edited or deleted, or P2 cards can be formatted using the 4. THUMBNAIL MENU button and 5. Cursor and SET buttons.

**2. OPEN button**

Used to open the LCD monitor.

**3. THUMBNAIL button**

This button switches the content on the 1. LCD monitor from the video in the viewfinder to clip thumbnails. Another press switches them back to the video from the viewfinder. Note that this switchover is not performed during a recording or playback.

**4. MENU (THUMBNAIL MENU) button**

In thumbnail display mode, this button allows you to manipulate the thumbnail menu (e.g., to delete clips).

**5. Cursor and SET buttons**

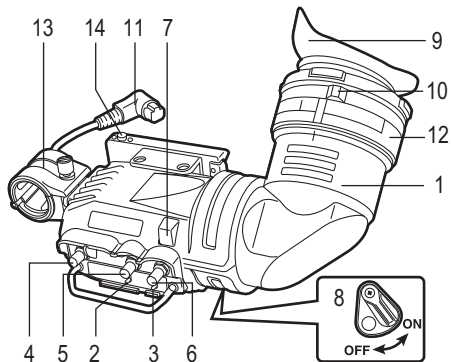
The 4 triangular buttons are the cursor buttons, and the center rectangular one is the SET button. They are used to select a thumbnail and manipulate the thumbnail menu. For more information, see [Manipulating Clips with Thumbnails] (page 126).

**6. EXIT button**

Used to return the display to the previous state when the thumbnail menu or the property screen is displayed.

# Viewfinder

You can use the following viewfinder (optional) on the unit:  
 HD Viewfinder: AJ-HVF21G (selectable between 59.94 and 50 Hz)

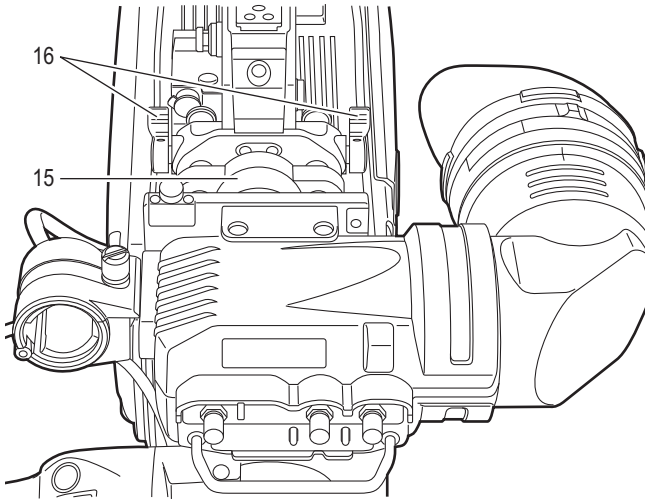


1. **Viewfinder (optional)**  
 During recording or playback, the viewfinder displays the video image in monochrome. It also displays warnings, messages, zebra patterns, markers (safety zone and center markers), etc.
2. **ZEBRA (zebra pattern) switch**  
 This switch is used to display the zebra pattern in the viewfinder.  
**ON:** Zebra pattern displayed.  
**OFF:** No zebra pattern displayed.
3. **TALLY switch**  
 Used to control the 7. Front tally lamp.  
**HIGH:** Front tally lamp brightly illuminated.  
**OFF:** Front tally lamp stays off.  
**LOW:** Front tally lamp dimly illuminated.
4. **PEAKING control**  
 Used to adjust the outlines of the video image in the viewfinder for easier focusing. This does not affect the signal output from the camera.
5. **CONTRAST control**  
 Used to adjust the contrast of the video image in the viewfinder. This does not affect the signal output from the camera.
6. **BRIGHT control**  
 Used to adjust the brightness of the video image in the viewfinder. This does not affect the signal output from the camera.

7. **Front tally lamp**  
 This lamp is activated when the 3. TALLY switch is positioned at [HIGH] or [LOW], and stays on during recording. It also blinks in synchronization with the REC lamp in the viewfinder, and provides alerts. Use the TALLY switch to change the intensity of the lamp to ([HIGH] or [LOW]).
8. **Back tally lamp**  
 This lamp stays illuminated during shooting. It also blinks in synchronization with the REC lamp in the viewfinder, and provides alerts. When the lever is positioned at [OFF], the back tally lamp is hidden.
9. **Eyepiece**  
**◆ Note**  
 Do not leave the eyepiece aimed at the sun. Doing so may damage the internal components.
10. **Diopter adjustment ring**  
 Use this to make adjustments in line with your diopter, in order to obtain optimum clarity in the viewfinder image. The adjustable range of the viewfinder view angle is shown in the following table.
 

Product Number	Adjustable range
AJ-HVF21G	-0.9 D to -4.4 D

 For an eyepiece for presbyopia, consult the dealer.
11. **Connecting plug**
12. **Locking ring**
13. **Microphone holder**
14. **Viewfinder stopper**  
 Used to attach or remove the viewfinder.



**15. Viewfinder left-right position anchoring ring**

Used to adjust the side-to-side position of the viewfinder.

**16. Viewfinder front-back position anchoring lever**

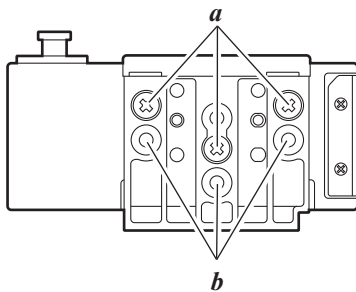
Used to adjust the fore-and-aft position of the viewfinder.

---

**◆ Note**

For more information, see the instruction manual for the viewfinder.

If, when fitting a large lens, there is insufficient space between the top of the lens and the bottom of the viewfinder, the positions of the slide rails can be shifted upwards slightly by repositioning the screws.



*a.* Conventional screw positions

*b.* Reposition and fix 3 screws here to raise the slide rail by approximately 8 mm.

# Recording and Playback

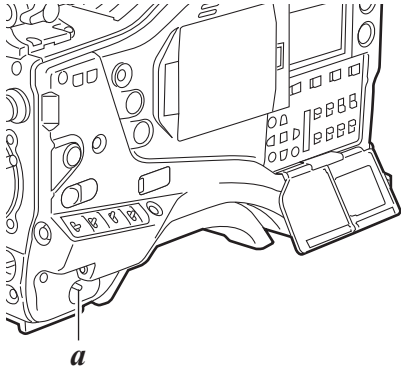
## P2 Cards

### Inserting P2 Cards

#### ◆ Note

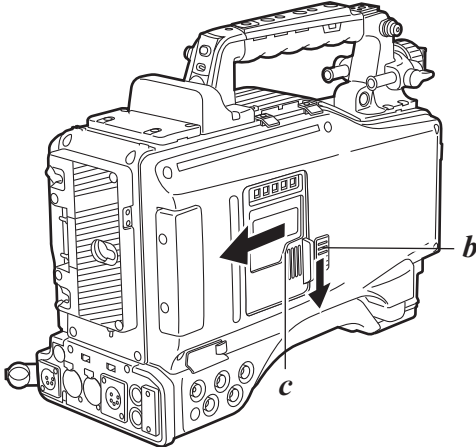
When using the unit for the first time, be sure to set the time data beforehand. On how the time data is set, see [Setting Time Data] (page 63).

- 1 Turn on the POWER switch.



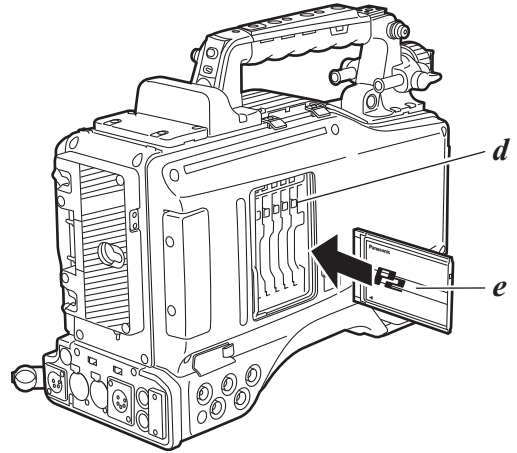
a. POWER: [ON]

- 2 While pressing down the slide lock button, slide the slide-out door to the left. The door opens.



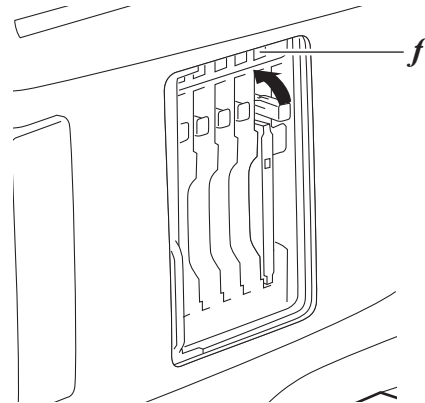
b. Slide lock button  
c. Slide-out door

- 3 Insert a P2 card into the P2 card slot until the eject button pops up.



d. Eject button  
e. The card must be inserted with the logo right way up.

- 4 Tilt up the popped-up eject button.



f. P2 card access LED

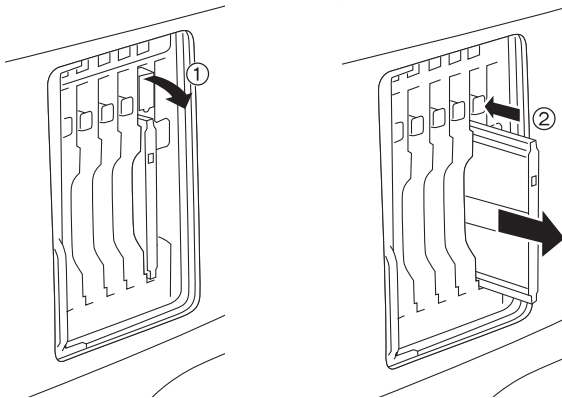
- 5 The P2 card access LED indicates the status of P2 card in the slot. For how the P2 card status is indicated, see [P2 card access LED and status of P2 cards] (page 32).
- 6 Close the slide-out door.

#### ◆ Note

Do not leave the slide-out door open when moving unit.

## Removing P2 Cards

- 1 While pressing down the slide lock button, move the slide-out door to the left. The door opens.
- 2 Tilt down the eject button.
- 3 Then, depress the eject button to release the P2 card so that you can remove it.



- ① Tilt down the eject button.
- ② Depress the tilted-down eject button to release the P2 card.

### ◆ Notes

- Do not remove the P2 card while it is being accessed or recognized (the P2 card access LED flashes orange), or the P2 card may fail. When the unit is set to keep the P2 card access LEDs turned off, stop the recording/playback and ensure that the PRE RECORDING is complete before removing the P2 card.
- If a P2 card being accessed is removed, the viewfinder displays “TURN POWER OFF” and unit gives a warning using an alarm and the WARNING lamp. In addition, all P2 card access LEDs blink rapidly in orange. If this is the case, turn the power off. For more information on warning indications, see [Warning System] (page 160).
- If a P2 card is removed while being accessed, clips on it may become irregular. Check the clips and restore them if required. For more information about how to restore clips, see [Restoring Clips] (page 135).
- If a P2 card being formatted is removed, it may be not be formatted properly. In this case, the viewfinder displays “TURN POWER OFF”. If this message appears, turn off the power, then restart unit to reformat the card.
- If a P2 card is inserted while another P2 card is being played back, the inserted P2 card is not recognized and the P2 card access LED for that card does not come on. Card recognition starts when the playback ends.
- Even if a P2 card is inserted in a vacant slot while recording, the media may not be recognized during the following times:
  - Immediately after pre-recording
  - Immediately before or after switching from the first P2 card for recording to the second one, when data are recorded on multiple cards spanning from one to the other (hot-swap recording)

### <For Your Information>

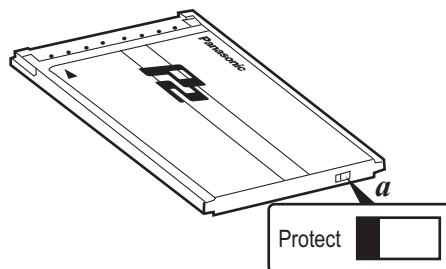
The P2 card access LEDs may be set to stay off using the menu option ACCESS LED. This option can be found on the <OPTION MODE> screen on the SYSTEM SETTING page.

### To Prevent Accidental Erasure of P2 Card Content

To prevent the content of a P2 card being accidentally erased, position the write-protect switch on the P2 card at [Protect].

### ◆ Note

Write-protect switchover can be performed while the card is being accessed (during recording or playback), but does not take effect until access to the card ceases.



#### a. Write-protect switch

#### P2 card access LED and status of P2 cards

P2 card access LED	MODE CHECK indication*	Status of P2 Card
Stays on in green	ACTIVE	Writing and reading enabled.
Stays on in orange	ACTIVE	Writing and reading enabled. The card is the current target card for recording (including LOOP REC).
Blinks in orange	ACCESSING	Writing or reading being performed.
Blinks rapidly in orange	INFO READING	Recognizing the P2 card.
Blinks slowly in green	FULL	The P2 card has no free space. Only reading is enabled.
	PROTECTED	The write-protect switch on the P2 card is positioned at [Protect]. Only reading is enabled.
Stays off	NOT SUPPORTED	The card is not supported by your unit. Replace the card.
	FORMAT ERROR	The P2 card is not properly formatted. Reformat the card.
	NO CARD	No P2 card is inserted.

\* The mode check indication is shown in the viewfinder. For more information, see [Viewfinder Status Indication Layout] (page 77).

The access LED located on the display window blinks when reading or writing data from or to any of the P2 cards inserted in slots 1 - 5 or stays illuminated when any of the cards are recordable. It stays off when none of the P2 cards are recordable.

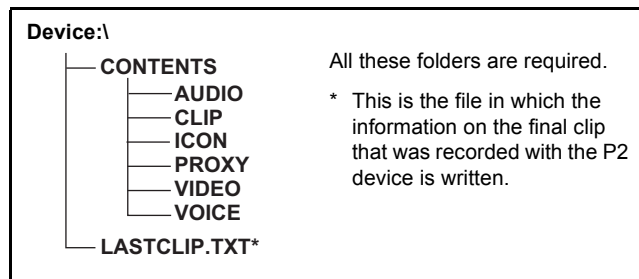


# How to handle data recorded on P2 cards

The P2 card is a semiconductor memory card that is used as the recording medium in the professional video production and broadcasting devices that make up the DVCPRO P2 Series.

- Since data recorded in the DVCPRO P2 format or AVC-Intra are in a file format, they have excellent compatibility with PCs. The file structure is a unique format, which in addition to video and audio data in MXF files contains various other important information items. The folder structure links the data as shown on the right.

Changing or deleting just one information component could make it impossible to recognize the data as P2 data or use the card in a P2 device.



- When transferring data from a P2 card to a PC, or when rewriting data saved on a PC to a P2 card, to prevent data loss be sure to use the special P2 Viewer software. Download it from the following website. (Compatible with the Windows Vista and Windows XP operating systems.)

<http://pro-av.panasonic.net/>

- When using regular IT tools such as Microsoft Windows Explorer or Apple Finder to transfer data to a PC, follow the instructions below. However, be sure to use the P2 Viewer when returning data to a P2 card.
  - Transfer the corresponding CONTENTS folder and LASTCLIP.TXT file together as a set. Do not transfer individual files from the CONTENTS folder. When copying, copy the LASTCLIP.TXT file at the same time as the CONTENTS folder.
  - When transferring multiple P2 cards to a PC, create a folder for each P2 card to prevent clips with the same name from being overwritten.
  - Do not delete data from the P2 card.
  - When formatting a P2 card, be sure to use a P2 device or the P2 Viewer.
- Microsoft and Windows are registered trademarks of the Microsoft Corporation in the USA and other countries.
- Apple and Macintosh are registered trademarks of Apple, Inc., in the USA and other countries.

# Basic Procedures

This section describes the basic procedure for shooting and recording. Before you embark on a shoot, pre-inspect your system to ensure that it works properly.

\* For directions on inspecting your unit, see [Inspections Before Shooting] (page 153).

## Battery Set-up to P2 card Insertion

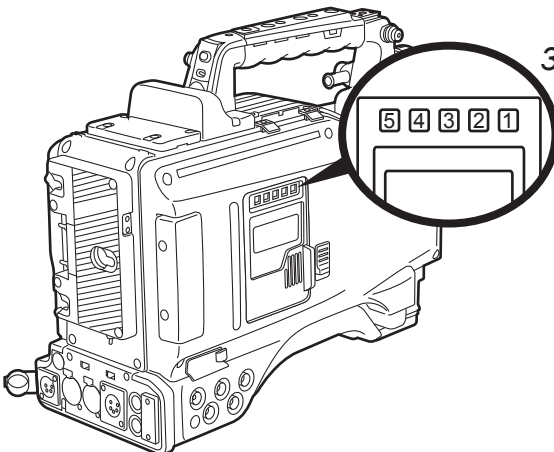
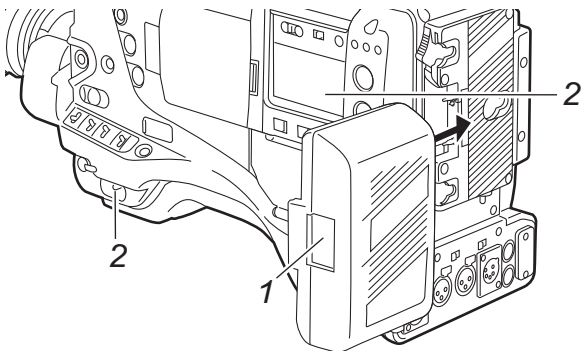
- 1 Insert a charged battery pack.
- 2 Turn on the POWER switch and ensure that more than 5 segments of the battery-remaining amount indication bar are illuminated.
  - If the number of illuminated segments is fewer than 5, first check the battery setting. If setting is not the problem, replace the battery with a fully charged one.

- 3 Insert a P2 card and ensure that the P2 card access LED stays on in orange or green. Then, close the slide-out door.

When more than one P2 card slot contains a P2 card, the card in the slot with the lowest number is used first. However, regardless of slot number, a P2 card inserted later will not be accessed until the other cards have been used.

### Example:

If all 5 slots contain P2 cards, the cards are used in order of slot numbers 1→2→3→4→5. However, if the P2 card in slot 1 is removed and then re-inserted, the cards will be used in the following order: 2→3→4→5→1.



Note that the number of the P2 card to which recording is in progress will be retained even when the power is turned off. When the power is next turned on, the last card written before powering-down will be the target card.

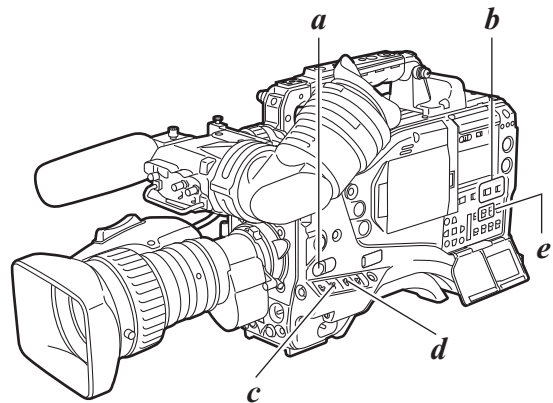
### ◆ Note

When “SLOT1” is selected for the menu option P.ON REC SLOT SEL, recording starts from the P2 card inserted in the smallest slot number, after the power is turned on. This option is found in the <REC FUNCTION> screen on the SYSTEM SETTING page.

## Switch Setting

When a battery and P2 cards are installed, set the switches as detailed below, before starting to use your unit.

### Setting the switches before shooting and recording



- a. **USER MAIN:** This switch is factory-set to switch the VFR function on/off.
- b. **AUDIO SELECT CH1/CH2:** [AUTO]
- c. **GAIN:** Normally, this should be set to “0 dB”. If conditions are too dark, an appropriate gain level should be set.
- d. **OUTPUT:** [CAM/AUTO KNEE ON] or [OFF]
- e. **TCG:** [F-RUN] or [R-RUN]

### ◆ Notes

- If the SLOT SEL function is assigned to the USER MAIN button or other user button, the button can be used to select a P2 card recording target from among multiple inserted P2 cards. When a new target P2 card is selected, the appropriate slot number appears on the P2 card remaining amount indicator in the viewfinder. For more information about the indications in the viewfinder, see [Viewfinder Status Indication Layout] (page 77).
- SLOT SEL function is enabled during recording. Until the P2 card on which images are recorded has been switched completely, “SLOT SEL” blinks on the viewfinder. If the SLOT SEL operation cannot be executed for any reason, for instance immediately after starting recording or switching the P2 card on which images are recorded, “SLOT SEL INVALID” is displayed.

For shooting, follow the steps below.

**1** Select a filter according to light conditions.

**2** **When the white balance is saved:**  
Position the WHITE BAL switch to [A] or [B].

**When the white or black balance is not saved and you have no time to adjust the white balance:**

Position the WHITE BAL switch to [PRST].  
This adjusts the white balance against the filter according to the position of the FILTER control.

**If the white balance is adjusted on the spot:**

Position the WHITE BAL switch to [A] or [B] and shoot a white test subject so that it appears at the center of the screen. Then, follow the steps below to adjust the white balance.

- 1 Press the AUTO W/B BAL switch toward [AWB] to adjust the white balance.
- 2 Press the AUTO W/B BAL switch toward [ABB] to adjust the black balance.
- 3 Press the AUTO W/B BAL switch toward [AWB] to adjust the white balance again.

For directions on making adjustments, see [Adjusting the White Balance] (page 52) and [Adjusting the Black Balance] (page 55).

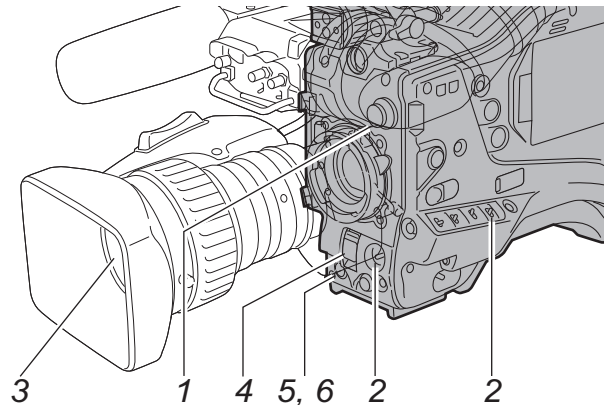
**3** Point the camera at your subject to adjust the focus, and zoom.

**4** To use the electronic shutter, set the shutter speed and operation mode.  
For more information, see [Setting the Electronic Shutter] (page 56).

**5** Press either the REC START button or VTR button at the lens to start recording.  
During recording, the REC lamp in the viewfinder stays illuminated.

**6** To stop recording, press either the REC START button or VTR button at the lens.  
The REC lamp in the viewfinder goes out.

White/Black balance adjustment to recording completion



### Operation Buttons

During recording, all operation buttons (REW, FF, PLAY/PAUSE, STOP) are disabled.

# Normal Recording

REC START button or VTR button at the lens starts recording of video and sound on the P2 card. A cluster of data that consists of video and sound generated through a shooting action, together with such added information as meta data, is called a “clip”.

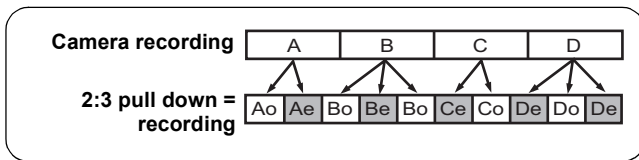
## Normal Recording and Native Recording

In the unit, the camera’s recording method is selectable between the native recording method with the frame rate unchanged and the normal recording method pulling the frame rate down to 59.94 or 50 frames.

### Normal recording (Pull-down recording)

Images at 24P (23.98P: referred to as 24P) are pulled down in 2:3 mode. Images at 30P (29.97P: referred to as 30P) are pulled down in 2:2 mode and recorded as 59.94i (referred to as 60i). Images at 25P are recorded as 50i with 2:2 pulled down. 1080i supports 24PA (2:3:3:2 Advanced Pull down) as well. AVC-Intra does not support pull-down recording.

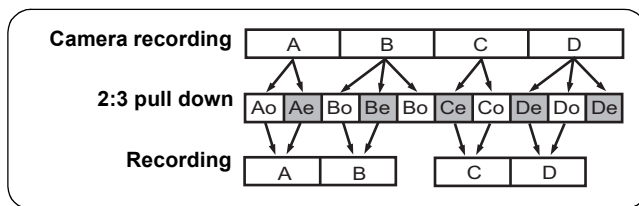
#### Example of 24P Over 60i



### Native recording

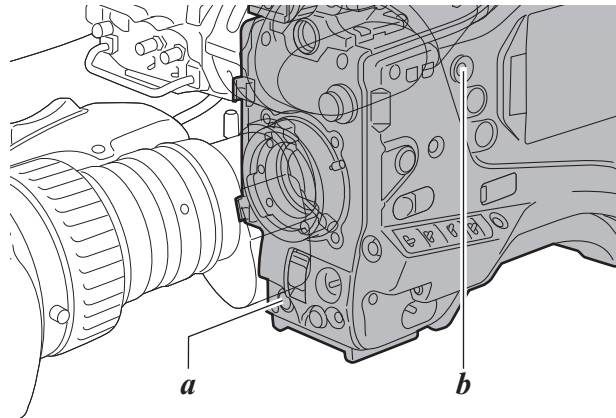
This recording method extracts and records effective frames at the frame rates of the AVC-Intra recording in 1080i. Even in native recording, the rate for outputting camera images and playback images is 59.94 or 50 frames that are pulled down.

#### Example of 1080/24PN (Native)



#### ◆ Notes

- The recording will start from the top frame of a 5-frame cycle for 24P/24PA recording, a 4-frame cycle for 24P native recording or a 2-frame cycle for 25P native recording, respectively. Therefore, the time code may be discontinued when recording clips continuously in another mode in which the recording cycle is different.
- Even if a P2 card has just been inserted, or the power has been just turned on, you can start recording using the internal memory of unit. In this case, recording cannot be stopped until the P2 card is recognized. If the inserted card is not recognized as a recordable P2 card, the record in internal memory is instantly discarded, and the message “CANNOT REC” is displayed on the viewfinder. Press the MODE CHECK button to check P2 card status (displayed in viewfinder).



a. REC START button  
b. MODE CHECK button

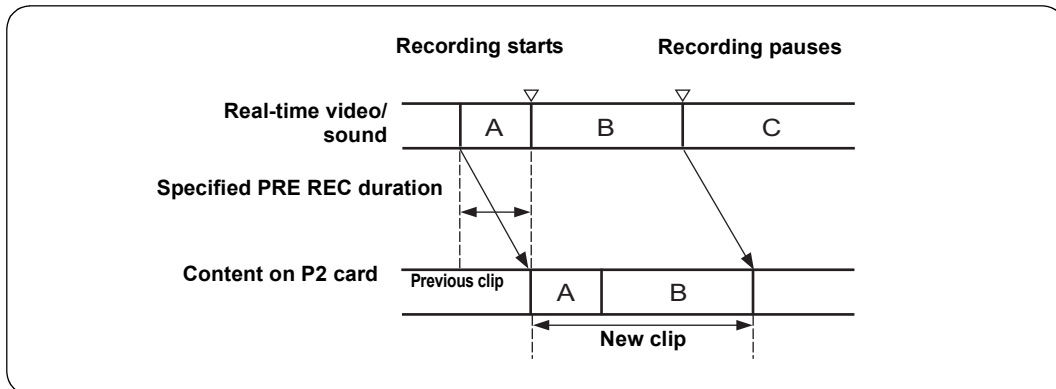
# PRE RECORDING function

The internal memory of your unit is capable of storing several seconds of video and sound data coming from the camera. This capability can be used to record video and sound several seconds before either the REC START button or VTR button at the lens is pressed to start recording. To use this function, the menu option PRE REC MODE must be set to "ON". The storage duration of the internal memory can be set from the menu option PRE REC TIME. PRE REC MODE and PRE REC TIME menu options can be found in the <REC FUNCTION> screen on the SYSTEM SETTING page.

The function of the menu option PRE REC MODE may be assigned to a desired user button by using any one of the menu options USER MAIN SW, USER1 SW, USER2 SW, MARKER SEL, or TEXT MEMO SW. These options can be found in the <USER SW> screen on the CAM OPERATION page. The following is the option for PRE REC TIME.

## 1-8SEC (for AVC-Intra100/50 or DVCPRO HD)

Specify the duration for which data may be recorded before either the REC START button or VTR button at the lens is pressed.



### ◆ Notes

- **“P-REC” indication when the PRE REC MODE menu option is set to “OFF”**  
After recording is stopped, the “P-REC” indication remains displayed until all video and sound are recorded on the P2 card, even if the PRE REC MODE menu option is set to “OFF”. For details of the “P-REC” display, refer to [28. INTERVAL REC/PRE RECORDING indication/SD memory card remaining free space] (page 83) in [Viewfinder Status Indication Layout].
- Immediately after the power is turned on, the menu option PRE REC TIME is selected and/or the storage duration is changed, the content in internal memory will be undefined. In these situations, the video or sound will not be recorded for the duration specified, even if either the REC START button or VTR button at the lens is pressed to start recording.
- A P2 card that has been just inserted takes some time to recognize. In this situation, video or sound may not be recorded for the duration specified, even if either the REC START button or VTR button at the lens is pressed to start a recording.
- The internal memory does not store video or sound when a playback or recording review is being performed. For this reason, no video or sound can be recorded during such operation.
- When recording starts, the time code (TCG) display may not update until the unit recognizes the P2 card.
- During native VFR recording and INTERVAL REC operation, the PRE RECORDING is not available.

# Variable Frame Rate (VFR) Recording Function

This unit can shoot at a lower frame rate (undercrank) or higher frame rate (overcrank).

## For native VFR recording (1080/23.98PsF (24PsF))

- 1 Open the <SYSTEM MODE> screen from the SYSTEM SETTING page using the menu.  
Set SYSTEM MODE to "1080-23.98PsF (24PsF)", REC FORMAT to "AVC-I 100 (50)/24PN", and VFR to "ON".  
Set FRAME RATE suitable for desired way of shooting.  
It is possible to select a frame rate of 1 to 24 if "24FRAME" is selected for the 24P VFR RANGE, and 1 to 30 if "30FRAME" is selected.
- 2 Press the REC START button to begin recording in the VFR mode.

### ◆ Notes

- When you set the 24P VFR RANGE to "30FRAME" and FRAME RATE to "25-30FRAME", output image becomes unnatural because the 24PsF sequence cannot be maintained correctly for the HD SDI A · B image signal.
- Recording of audio is only possible when the frame rate is set to 24 frames.

## For native VFR recording (1080/59.94i (50i))

- 1 Open the <SYSTEM MODE> screen from the SYSTEM SETTING page using the menu.  
Set SYSTEM MODE to "1080-59.94i (50i)", REC FORMAT to "AVC-I 100 (50)/24PN (25P)" or "AVC-I 100 (50)/30PN", and VFR to "ON".  
Set FRAME RATE suitable for desired way of shooting.  
It is possible to select from 1 to 30 (25) frames as a frame rate.
- 2 Press the REC START button to begin recording in the VFR mode.

### ◆ Note

Recording of audio is only possible when the frame rate is set to the same frame rate as set in the REC FORMAT (24PN: 24 frames, 30PN: 30 frames, and 25P: 25 frames).  
When it is set to other frame rates, audio meter in the display window or viewfinder of the unit will move, but it will not be recorded to the P2 card since embedded audio is superimposed on the HD SDI signal.

## During recording native VFR - general notes

- It is not possible to switch between P2 cards.
- During recording, it is not possible to switch VFR "ON"/"OFF".
- The time code is fixed by the Rec run.
- It is possible to combine standard VFR recording with PRE RECORDING, LOOP REC, INTERVAL REC or proxy recording.
- Thumbnail screens may be produced one frame later than in the video recorded to the P2 card. It should be noted that this does not indicate a fault.
- Since the embedded audio is superimposed into the HD SDI signal, even if the VFR is set to "ON" in the VFR, it may not be recorded onto the P2 card depending on other menu setting, even if the audio level meter in the display window or viewfinder of the unit is showing a move.
- It takes about 10 seconds to be able to record VFR after turning the power ON.

## To change the frame rate while recording in VFR

It is possible to change the frame rate while recording in VFR.

- 1 Open the <OPTION MENU> screen from the OPTION page. OPTION page can be opened by pressing the MENU button while pressing the LIGHT button. Set the RATE SET AT REC to "ON". Close the menu screen by pressing the MENU button.
- 2 Frame rate can be changed to match the intention of the recording by pressing the SYNCHRO SCAN adjustment switch (+/-) while the frame number display (number in white) in the VF screen is flashing by pressing the JOG dial button. It is also possible to instantly switch to any frame rate by using the FRAME RATE function of the USER switch.

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### ◆ Note

Recording of audio to the P2 card will not be possible when the RATE SET AT REC is set to "ON". Delay of audio is almost matched to the delay of the image when the frame rate is changed. Audio that is superimposed on the HD SDI signal will be muted when the delay for the audio is changed.

---

### ◆ Note

When SYSTEM MODE is set to "1080-59.94i", setting REC FORMAT to "AVC-I 100/30PN" or "AVC-I 50/30PN" results in operation at AVC-I 100/29.97PN or AVC-I 50/29.97PN respectively. Setting REC FORMAT to "AVC-I 50/24PN" results in operation at AVC-I 50/23.98PN. Similarly, when SYSTEM MODE is set to "1080-24PsF", setting REC FORMAT to "AVC-I 100/24PN" or "AVC-I 50/24PN" results in operation at AVC-I 100/24PN or AVC-I 50/24PN respectively.

## Flow Effect Shooting

This way of shooting provides a flow effect and may, for instance, be used to shoot a subject on a far side of a road with a stream of fast-moving cars as the flow, in such a way that the stationary subject comes into focus through the cars.

- 1 Open the <SYSTEM MODE> screen from the SYSTEM SETTING page using the menu.  
Set SYSTEM MODE to "1080-59.94i (50i)", REC FORMAT to "AVC-I 100 (50)/60i (50i)" or "DVCPROHD/60i (50i)", and VFR to "ON"  
Set FRAME RATE suitable for desired way of shooting.  
It is possible to select frame rate of 1 to 30 frames if "1080-59.94i" is selected for the SYSTEM MODE, and 1 to 25 frames if "1080-50i" is selected.

- 2 Press the REC START button to begin recording in the VFR mode.

### During Flow Effect Shooting - general notes

- All the image signal and HD SDI output signal recorded onto the P2 card will be either 59.94i or 50i, and all frames will be valid.
- Audio recording will be recorded onto P2 card at all frame rates.
- Fixed shutter and synchro scan are valid.
- It is not possible to switch between P2 cards.
- During recording, it is not possible to switch VFR "ON"/"OFF".

### Standard settings for flow effect shooting

System frequency	SYSTEM MODE setting		Recording Frame Rate
	SYSTEM MODE	Other settings	
59.94 Hz	1080-59.94i	REC FORMAT	AVC-I 100/60i (AVC-I 50/60i) (DVCPROHD/60i)
		VFR	ON
		FRAME RATE	Set to 23FRAME or lower
50 Hz	1080-50i	REC FORMAT	AVC-I 100/50i (AVC-I 50/50i) (DVCPROHD/50i)
		VFR	ON
		FRAME RATE	Set to 24FRAME or lower



## Practical Use of Other VFR Recording Functions

### Standard Speed Shooting for Film Production

When producing for the cinema screen, a frame rate of 24 fps (24 frames per sec) matching the rate at which films are played back is normal (1× speed). When settings below are used, the recorded material will play back as a film. Images like a film can be obtained by FILMLIKE1-3 and FILM-REC gamma. For more information about the FILMLIKE1-3 and FILM-REC, see page 184.

#### Standard Settings for Film Production

SYSTEM MODE setting			Recording Frame Rate
SYSTEM MODE	Other settings		
1080-24PsF	REC FORMAT	AVC-I 100/24PN (AVC-I 50/24PN)	24 frames
	CAMERA MODE	24P	

### Standard Speed shooting for Commercial and TV production

When producing commercials and TV shows for HDTV/SDTV broadcasts, a frame rate of 30 fps (30 frames per second) (or 25 fps (25 frames per second) at 50 Hz), is the norm (1× speed). When the settings below are used, the recorded material will play back as a television broadcast. Commercials and music clips can be recorded with film-like image quality, and a frame rate suitable for television broadcasting.

#### Standard settings for commercials and TV shows

System frequency	SYSTEM MODE setting			Recording Frame Rate
	SYSTEM MODE	Other settings		
59.94 Hz	1080-59.94i	REC FORMAT	AVC-I 100/30PN (AVC-I 50/30PN) (AVC-I 100/60i) (AVC-I 50/60i) (DVCPROHD/60i)	29.97 frames
		CAMERA MODE	30P	
50 Hz	1080-50i	REC FORMAT	AVC-I 100/25PN (AVC-I 50/25PN) (AVC-I 100/50i) (AVC-I 50/50i) (DVCPROHD/50i)	25 frames
		CAMERA MODE	25P	

## Undercrank Shooting

This way of shooting provides the quick motion effects used, for instance to realize speeding clouds, a person standing stationary in the blur of a moving crowd, and kung-fu moves. For example, when the scenes have been shot using the 24P recording format for specifying playback frames, the speed of the quick motion effects can be doubled by setting the VFR recording frame rate to 12 fps.

### Standard settings for undercrank shooting

System frequency	SYSTEM MODE setting		Recording Frame Rate	
	SYSTEM MODE	Other settings		
59.94 Hz	1080-59.94i	REC FORMAT	AVC-I 100/24PN (AVC-I 50/24PN)	1 - 23 frames
		VFR	ON	
		FRAME RATE	Set to 23FRAME or lower	
50 Hz	1080-50i	REC FORMAT	AVC-I 100/25PN (AVC-I 50/25PN)	1 - 24 frames
		VFR	ON	
		FRAME RATE	Set to 24FRAME or lower	
60 Hz	1080-24PsF	REC FORMAT	AVC-I 100/24PN (AVC-I 50/24PN)	1 - 23 frames
		VFR	ON	
		FRAME RATE	Set to 23FRAME or lower	

## Overcrank shooting

This way of shooting provides slow motion effects used in car chases, action scenes, climactic scenes and other dramatic moments. For example, if the image is taken with REC FORMAT 24P specifying the playback frame, you can get a slow motion effect of x1.25 by setting the recording frame rate to 30fps.

### Standard settings for overcrank shooting

System frequency	SYSTEM MODE setting		Recording Frame Rate	
	SYSTEM MODE	Other settings		
59.94 Hz	1080-59.94i	REC FORMAT	AVC-I 100/24PN (AVC-I 50/24PN)	25 - 30 frames*
		VFR	ON	
		FRAME RATE	Set to 24FRAME or higher	
60 Hz	1080-24PsF	REC FORMAT	AVC-I 100/24PN (AVC-I 50/24PN)	25 - 30 frames*
		VFR	ON	
		FRAME RATE	Set to 25FRAME or higher	

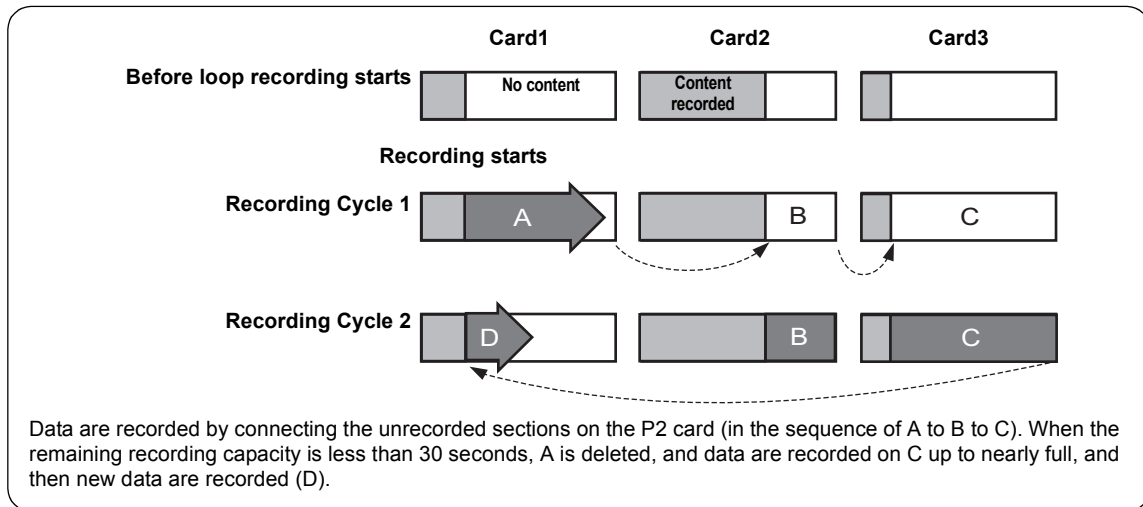
\* It is necessary to set the 24P VFR RANGE to "30FRAME". Images of up to 30 frames will be recorded onto the P2 card at this time, but the HD SDI output sequence will not be output properly.  
24P VFR RANGE is selected in the <SYSTEM MODE> screen on the SYSTEM SETTING page.

- Slow motion effect is not achieved when the SYSTEM MODE is set to "1080-50i" and the REC FORMAT is set to "AVC-I \*\*\*/25PN".

# Loop Recording

When two or more P2 card slots contain cards, this function allows the target P2 card to be switched in order. Even when the free space of a P2 card is used up, this function continues recording while erasing existing data.

To use this function, the menu option LOOP REC MODE must be set to "ON". The option LOOP REC MODE can be found in the <REC FUNCTION> screen on the SYSTEM SETTING page.



## ◆ Notes

- When the loop recording capability is used, each P2 card must have at least 1 minute of free space.
- During loop recording, the P2 card access LEDs for all target P2 cards illuminate in orange. Note that if any of the target P2 card is removed, loop recording stops.
- When the menu option LOOP REC MODE is set to "ON", the viewfinder and display window both show "LOOP". However, when only one card is inserted, or when each card has less than 1 minute of free space, the loop recording capability does not work, even if the option LOOP REC MODE is set to "ON". If this is the case, the indication "LOOP" flashes in the viewfinder and on the display window.
- When the menu option LOOP REC MODE is set to "ON", the space remaining on the P2 card is displayed as an estimated recording time for the current recording format. When LOOP REC is stopped immediately after deleting an old recording, the actual time remaining may be shorter than the displayed time.
- When you set LOOP REC MODE to "ON", VFR is set to "OFF".
- During native VFR recording and use of the INTERVAL REC function, the LOOP REC function is not available.

## Terminating the Loop Recording Mode

You can terminate the loop recording mode by either:

- Turning off the POWER switch of unit; or
- Setting the menu option LOOP REC MODE to "OFF".

# Interval Recording

It is possible to record in intervals of one frame as the shortest length by using the internal memory of the unit. To use this option, open the <REC FUNCTION> screen from the SYSTEM SETTING page, and set the interval recording mode, REC TIME, PAUSE TIME and TAKE TOTAL TIME for the menu option INTERVAL REC MODE. When the settings are finalized, TOTAL REC TIME needed on the P2 card is automatically calculated and displayed.

The following are the options for INTERVAL REC MODE:

- OFF:** No interval recording performed.
- ON:** Interval recording performed.
- ONE SHOT:** Performs "one-shot" recording for the duration specified under the REC TIME option by pressing either the REC START button or VTR button at the lens.

## ◆ Notes

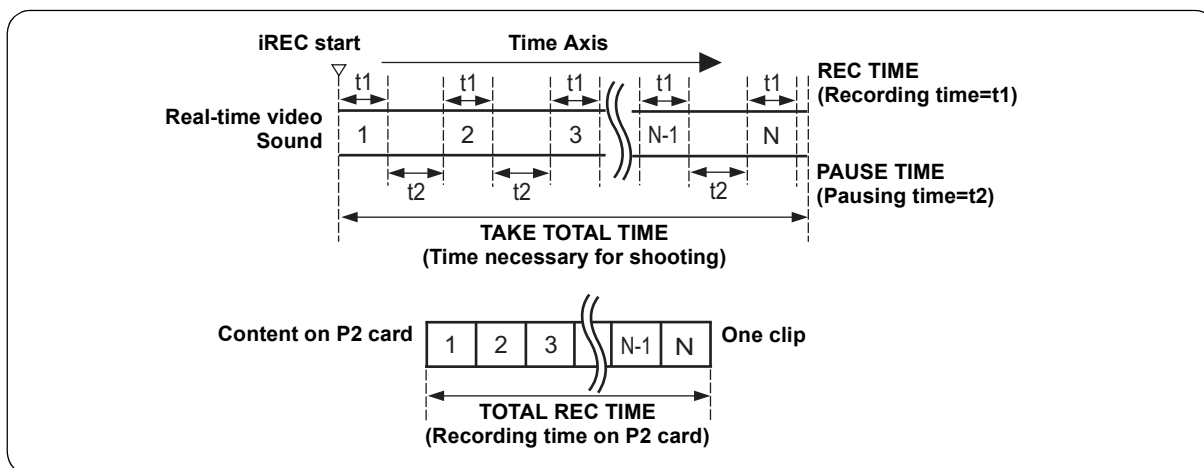
- When you set INTERVAL REC to "ON" or "ONE SHOT", VFR is set to "OFF".  
(When an item including any of the 24PN, 25PN or 30PN modes is selected using the REC FORMAT menu option.)
- The shortest recording time, stand-by time, and the set value of the cut-off unit frame number\* may vary with the recording method as follows.

Recording method		Unit frame number
1080i	60i, 50i 30P, 25P (Pull down) 30PN, 25PN (Native)	1 frame
	24P, 24PA (Pull down)	5 frames
	24PN (Native)	4 frames

## Shooting procedures when INTERVAL REC is ON

- 1 Following basic operations of shooting and recording according to [Basic Procedures], lock the camera securely.
- 2 Check that "i" is blinking in the display, and that the interval recording mode is selected.
- 3 Press either REC START button or VTR button at the lens.

Interval recording starts. Recording automatically stops after the specified TAKE TOTAL TIME, and the entire recording is generated as one clip. "i" starts blinking in the display when the internal recording mode is selected. "iREC" illuminates after recording starts. "iREC" blinks during a pause. The display in the viewfinder is the same as that in the display window. The tally lamp illuminates during recording. If PAUSE TIME is set at 2 minutes or longer, the tally lamp illuminates at 5-second intervals to indicate that it is paused. The tally lamp also blinks 3 seconds before recording starts.



### For continuous recording

Press either the REC START button or VTR button at the lens, again. Interval recording resumes.

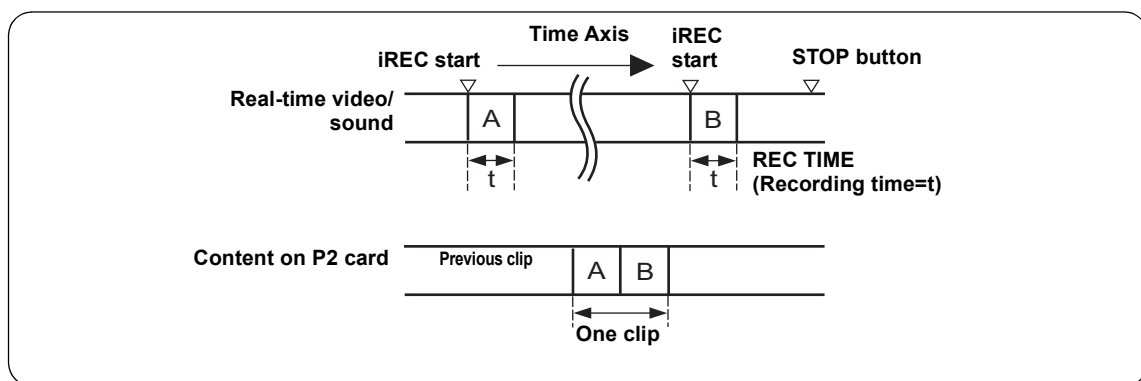
### To stop recording

Press the STOP button. Recording stops. Then, the camera accesses the P2 card to record the video stored in memory before recording stops. The record from the beginning of the interval recording to the moment of pressing the STOP button is generated as one clip.

### Shooting procedures for the ONE SHOT mode of INTERVAL REC

After setting the INTERVAL REC mode, follow these steps:

- 1** Following basic operations of shooting and recording according to [Basic Procedures], lock the camera securely.
- 2** Press either the REC START button or VTR button at the lens.  
The unit automatically goes into ONE SHOT pause mode after the specified REC TIME.
- 3** Performs recording for the duration specified under the REC TIME option by pressing either the REC START button or VTR button at the lens, and returns to ONE SHOT pause mode.
- 4** Press the STOP button.  
The video and sound stored in memory are generated as one clip.



### To check the previous recording during a pause

Press the RET button at the lens to put the unit into REC REVIEW mode. ONE SHOT operation continues after the REC REVIEW.

### To divide clips or to change the P2 card used for recording

Even during ONE SHOT mode, clips will not be generated on the P2 card until the STOP button is pressed. Press the STOP button, and stop ONE SHOT mode operation.

### To stop the ONE SHOT mode of INTERVAL REC

- Set the menu option INTERVAL REC MODE to "OFF".
- When INTERVAL REC HOLD is set to "OFF", the mode returns to ordinary recording mode if the POWER switch of the unit is turned off.  
If INTERVAL REC HOLD is set to "ON", the interval recording mode will not change even if the POWER switch is turned off.

## During INTERVAL REC mode general notes

### • Sound

By selecting "ON"/"OFF" for the menu option AUDIO REC in the <REC FUNCTION> screen, it is possible to specify whether or not sound will be recorded during interval recording.

### • Record/playback buttons

During interval recording, all operation buttons other than STOP (REW, FF, PLAY/PAUSE) are disabled. However, during a pause in ONE SHOT mode, REC REVIEW can be executed with the RET button on the lens.

### • If the POWER switch is turned [OFF] during recording

If the unit is turned off during interval recording, the video stored in memory is recorded onto the P2 card, and then the unit automatically turns off.

### • To start emergency recording during a pause

If the REC START button is assigned to one of the USER MAIN, USER 1, USER 2, MARKER SELECT and TEXT MEMO button in advance, emergency recording can be started during a pause by holding down the relevant button. Pause time measurement continues after such emergency recording. However, these buttons will not operate even if pressed when REC FORMAT is set to "24P", "24PA", or "24PN".

### ◆ Note

However, this function does not work in native recording with VFR operation.

### • Time code indication

When recording starts, the time code (TCG) display may not update until the unit recognizes the P2 card.

### • Removing cards

During INTERVAL REC mode operation, the P2 card access LED for the target P2 card blinks in orange. Do not remove the P2 card during this status. If you should remove the card accidentally, restore clips. However, even if the clips are restored, the last 3 to 4 seconds of the recording (up to a maximum of about 10 seconds if the P2 card is removed while recording onto multiple P2 cards) may be lost. For more information on how to fix clips, see [Restoring Clips] (page 135).

### • Thumbnail operation and menu operation

Thumbnail operation does not work during the INTERVAL REC mode operation. Press the STOP button before operating thumbnails.

When standby time is set to 1 minute or more or when in ONE SHOT mode, the following restrictions apply even though the menu can be operated during stand-by mode.

- The respective settings of SYSTEM MODE, REC FORMAT, CAMERA MODE, PC MODE and VFR cannot be changed.
- The respective settings for SD CARD READ/WRITE, LENS FILE CARD R/W, READ USER DATA, and READ FACTORY DATA cannot be executed.

## Recording Review Function

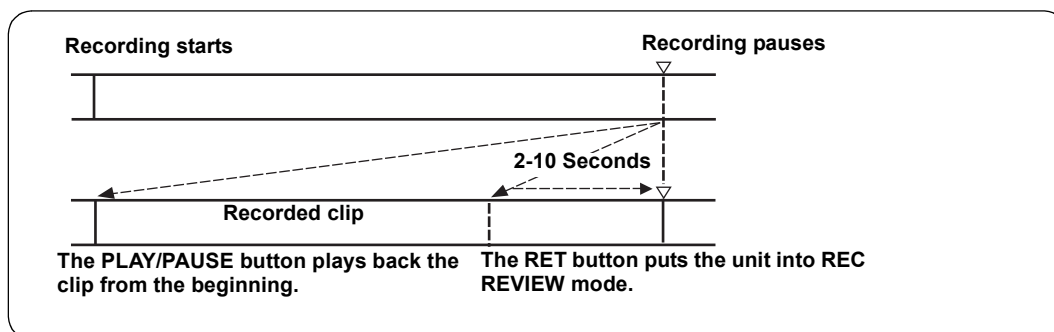
When recording is paused, pressing the RET button automatically locates the last 2 seconds of video just recorded, and the viewfinder provides video playback. Thus, it is possible to check whether the recording has been performed correctly.

After playback, the unit is again ready to start recording.

The picture location/playback duration can be increased to up to 10 seconds by continuously pressing the RET button. For short clips, however, when the start of a clip is located, continuously pressing the RET button does not play back any clips before that clip.

The function of the RET button may be assigned to a desired user button by using one of the menu options USER MAIN SW, USER1 SW, USER2 SW, MARKER SEL or TEXT MEMO SW. These options can be found in the <USER SW> screen on the CAM OPERATION page.

When recording is paused, pressing the PLAY/PAUSE button plays back the last recorded clip, from the beginning. After completion of playback, the unit enters the stopped state.



### ◆ Notes

- Set the menu option RET SW (found in the <SW MODE> screen on the CAM OPERATION page) to "R.REVIEW".
- When the HD SDI A · B switch on the side panel is positioned at [MEM], the video for REC REVIEW is output from the video output connectors (HD SDI A · B and MON OUT connectors), and also to the viewfinder.  
Note that when a backup device is connected to back up the video the pictures for REC REVIEW are backed up.

# Normal and Variable Speed Playback

The PLAY/PAUSE button provides monochrome playback through the viewfinder and color playback on the LCD monitor. A color video monitor connected to the HD SDI A · B or MON OUT connector of unit also provides color playback.

The HD SDI A · B connector outputs an SDI playback (to view the playback, the HD SDI A · B switch on the side panel must be positioned to [MEM]).

## Variable speed playback

The FF and REW buttons provide 32× and 4× fast playbacks and fast reverse playbacks.

When playback is paused, the FF button locates the beginning of the next clip while maintaining the pause mode. When playback is paused, the REW button locates the beginning of the current clip while maintaining the pause mode.

### ◆ Notes

- When a clip with a different SYSTEM MODE cannot be played back, change the SYSTEM MODE setting of this unit to match the format of the clip. For more details about the SYSTEM MODE, refer to [Recording formats and output connector signal formats] (page 50).
- When a P2 card has been just removed or inserted, or when the power has been just turned on for playback, it may take some time for unit to read clip information. If this is the case, the viewfinder displays “UPDATING”. Also, it will display “CANNOT PLAY” when the PLAY/PAUSE button is pressed while the P2 card is being recognized.
- If a P2 card is inserted while another P2 card is being played back, the clips on the inserted P2 card will not be played back. A P2 card inserted during playback will be recognized after playback ends.
- If you perform variable speed playback on a clip split across more than one P2 card, sound may disappear for a moment. This is not a fault.

# Text Memo Function

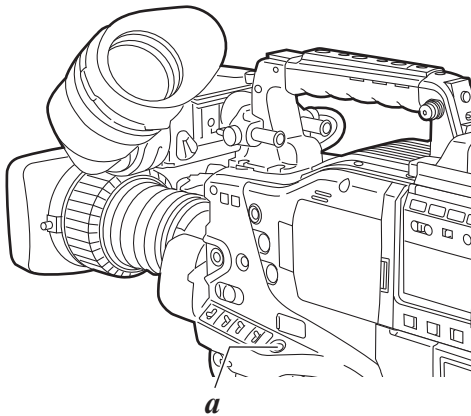
Text memos are time-coded thumbnails added to any video point when a clip is being recorded or played back.

The TEXT MEMO button adds text memo information at the appropriate point. You can edit added text memos using the P2 Viewer.

Through a thumbnail display, you can choose and play back the text memo point or copy any portion. For more information, see [Text Memo] (page 132).

### ◆ Notes

- One clip can have up to 100 text memos.
- Text memos can also be recorded when the LCD monitor is in thumbnail mode. In this case, the text memo is added to the position on the clip where the cursor is set (normally at the beginning) only.
- Text memos cannot be recorded when the color bar is output or the unit is in LOOP REC mode and INTERVAL REC mode.



a. TEXT MEMO button

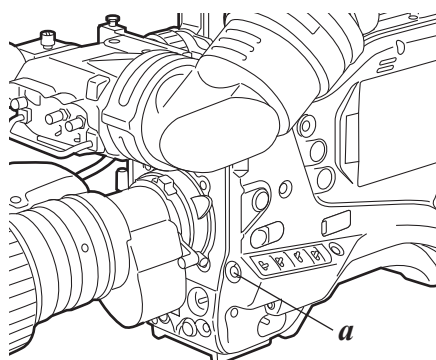
# Shot Mark Function

A shot mark is added to the thumbnail of a clip to distinguish that clip from others. It is also possible to select only those clips which include shot marks, and display and playback the selected clips on the LCD monitor.

Shot marks may also be added or erased using clip thumbnails. For more information, see [Shot Mark] (page 132).

## Adding Shot Marks

To add a shot mark during recording, press the SHOT MARKER button. The viewfinder displays "MARK ON" and adds a shot mark to the thumbnail of the appropriate clip. Another press of the button erases the shot mark. When the SHOT MARKER button is pressed during a recording pause, a shot mark is attached to the clip recorded immediately before. The shot mark can be deleted with another press.



a. SHOT MARKER button

### ◆ Notes

- During color bar output, LOOP REC recording, and in INTERVAL REC mode, it is not possible to add/delete shot marks.
- It is impossible to add shot marks to incomplete clips (refer page 128).
- For clips recorded on plural P2 cards or clips split on a P2 card (refer to Notes on page 11), a shot mark is added to the top clip only.

# Recording Setting and Operation Mode

The unit's recording mode works according to the priorities outlined in the following table, relative to the setting of the menus and switches.

Functional operation mode	Menus related to system/recording					Buttons		Proxy recording (optional)
	PC MODE	INTERVAL REC MODE	LOOP REC MODE	PRE REC MODE	VFR	Recording a text memo	Shot mark	
USB device	USB DEV.	Disabled	Disabled	Disabled	Disabled	Disabled	Disabled	Disabled
USB host	USB HOST	Disabled	Disabled	Disabled	Disabled	Enabled	Enabled	Disabled
INTERVAL REC	OFF	ON or ONE SHOT	Disabled	Disabled	Enabled*1	Disabled	Disabled	Disabled
LOOP REC		OFF	ON	Enabled 1s - 8s	Enabled*1	Disabled	Disabled	Disabled
Normal recording			OFF	Enabled*2 1s - 8s	Enabled	Enabled*3	Enabled*3	Enabled*2

\*1 Disabled for native recording

\*2 Disabled for native VFR recording

\*3 Disabled for color bars



# Adjustments and Settings for Recording

## Multi Format

### Video system and Recording format

For the unit to obtain image signals for each HD format, CCD is switching between interlaced scan and progressive scan (reading all pixels).

With combinations of the SYSTEM MODE and CAMERA MODE menu options on the <SYSTEM MODE> screen on the SYSTEM SETTING page, you can select a video system from among 13 types.

### Selecting a recording signal and method

#### SYSTEM MODE menu option

Allows you to select a combination of system frequency (59.94 Hz, 50 Hz, 23.98 Hz and 24 Hz) and signaling system (1080i). When a change has been made to the SYSTEM MODE option, the viewfinder indicates "TURN POWER OFF". Then, turn the POWER switch of the unit off and wait 5 seconds or longer before turning the unit on again.

#### REC FORMAT menu option

Used to select the recording format.

##### AVC-I 100

The AVC-Intra100 format is used to record video. The native recording format applies to the 30PN, 24PN and 25PN modes.

##### AVC-I 50

The AVC-Intra50 format is used to record video. The native recording is applied to the 30PN, 24PN and 25PN modes.

##### DVCPROHD

The DVCPRO HD format is used to record video.

#### CAMERA MODE menu option

Selecting a shooting mode. For information about the behavior for each setting, see [Recording formats and output connector signal formats] (page 50).

#### ◆ Notes

- When the camera has been switched from 60i or 30P to 24P or 24PA, video may produce noise for a moment because the pull-down 5-frame cycle is adjusted. This is not an abnormal condition.
- When "AVC-I 50" or "AVC-I 100" is selected, the 24PA mode cannot be selected.

#### VFR menu option

You can select whether to perform VFR recording.

- ON** Enables variable frame rate shooting at the frame rate set in FRAME RATE.
- OFF** The frame rate is determined according to the REC FORMAT setting.

#### 24P VFR RANGE menu option

It is possible to increase the frame rate of VFR up to 30 frames when the SYSTEM MODE is set to "1080-23.98PsF" or "1080-24PsF".

##### 24FRAME

1 to 24 frames can be set for VFR.

##### 30FRAME

1 to 30 frames can be set for VFR. But the output image becomes unnatural because the HD SDI output signal sequence cannot be maintained correctly.

#### FRAME RATE menu option

When the VFR menu option is set to "ON", it is possible to shoot using the frame rate set in this menu option. When the VFR menu option is set to "ON", pressing the jog dial button displays the frame rate on the upper left of the viewfinder screen as a blinking number. It is then possible to change the frame rate setting without opening the FRAME RATE menu option by pressing the SYNCHRO SCAN adjustment buttons (+/-). Note, however, that this operation is not available when the FRATE function has been set to on using a user button.

## Recording formats and output connector signal formats

The table below shows the formats used to record signals from the CCD and externally input signals along with the formats for signals output from the output connectors.

Menu setting					Operating state							
SYSTEM MODE	REC FORMAT	CAMERA MODE	VFR	FRAME RATE	Recording format/frame rate	Recording TC frame number/mode	Audio recording	Video output format	Input/output TC frame number/mode			
1080-59.94i	DVCPROHD/60i	60i	OFF	Disabled	59.94i	30 frames	○	1080-59.94i	30 frames			
			ON	1FRAME-30FRAME	59.94i (Valid for all frames)			1080-59.94i (Valid for all frames)				
		30P	Fixed to OFF	Disabled	29.97P Over 59.94i			1080-29.97PsF Over 59.94i 2:2				
		24P	Fixed to OFF	Disabled	23.98P Over 59.94i 2:3			1080-23.98PsF Over 59.94i 2:3				
		24PA	Fixed to OFF	Disabled	23.98P Over 59.94i 2:3:3:2			1080-23.98PsF Over 59.94i 2:3:3:2				
	AVC-I 100/60i AVC-I 50/60i	60i	OFF	Disabled	59.94i			1080-59.94i				
			ON	1FRAME-30FRAME	59.94i (Valid for all frames)			1080-59.94i (Valid for all frames)				
	AVC-I 100/30PN AVC-I 50/30PN	30P	OFF	Disabled	29.97P-29.97PN (Native)			30 frames		○	1080-29.97PsF Over 59.94i 2:2	30 frames
			ON	1FRAME-30FRAME	1-29.97P- 29.97PN (Native)			30 frames R-RUN only		_*2	For EE: 1080-* *PsF Over 59.94i Playback: 1080-29.97PsF Over 59.94i 2:2	30 frames R-RUN only
	AVC-I 100/24PN AVC-I 50/24PN	24P	OFF	Disabled	23.98P- 23.98PN (Native)			24 frames		○	1080-23.98PsF Over 59.94i 2:3	30 frames
ON			1FRAME-30FRAME	1-29.97P- 23.98PN (Native)	24 frames R-RUN only	_*2	For EE: 1080-* *PsF Over 59.94i Playback: 1080-23.98PsF Over 59.94i 2:3	30 frames R-RUN only				
1080-23.98PsF	AVC-I 100/24PN AVC-I 50/24PN	24P	OFF	Disabled	23.98P- 23.98PN (Native)	24 frames	○	1080-23.98PsF Over 47.96i 2:2	24 frames			
			ON	1FRAME-24FRAME or 30FRAME*1	1-23.98P or 29.97P - 23.98PN (Native)	24 frames R-RUN only	_*2	For EE: 1080-* *PsF Over 47.96i Playback: 1080-23.98PsF Over 47.96i 2:2	24 frames R-RUN only			
1080-24PsF	AVC-I 100/24PN AVC-I 50/24PN	24P	OFF	Disabled	24P-24PN (Native)	24 frames	○	1080-24PsF Over 48i 2:2	24 frames			
			ON	1FRAME-24FRAME or 30FRAME*1	1-24P or 30P - 24PN (Native)	24 frames R-RUN only	_*2	For EE: 1080-* *PsF Over 48i Playback: 1080-24PsF Over 48i 2:2	24 frames R-RUN only			
1080-50i	DVCPROHD/50i	50i	OFF	Disabled	50i	25 frames	○	1080-50i	25 frames			
			ON	1FRAME-25FRAME	50i (Valid for all frames)			1080-50i				
		25P	Fixed to OFF	Disabled	25P Over 50i 2:2			1080-25PsF Over 50i 2:2				
	AVC-I 100/50i AVC-I 50/50i	50i	OFF	Disabled	50i			25 frames		○	1080-50i	25 frames
			ON	1FRAME-25FRAME	50i (Valid for all frames)			25 frames		○	1080-50i (Valid for all frames)	25 frames
	AVC-I 100/25PN AVC-I 50/25PN	25P	OFF	Disabled	25P-25PN (Native)			25 frames		○	1080-25PsF Over 50i 2:2	25 frames
ON			1FRAME-25FRAME	1-25P - 25PN (Native)	25 frames R-RUN only	_*2	For EE: 1080-* *PsF Over 50i Playback: 1080-25PsF Over 50i 2:2	25 frames R-RUN only				

○: Supported

\_: Not supported

\*1 For 1080/23.98PsF and 1080/24PsF, it is possible to record signals of up to 30 frames on the P2 card if the 24P VFR RANGE is set to "30FRAME". However, since the HD SDI output signal is 23.98PsF or 24PsF, the sequence of the signal will not be maintained correctly if it is set above 25 frames during the VFR recording. The output image becomes unnatural, but this is not a malfunction. 24P VFR RANGE is selected in the <SYSTEM MODE> screen of the SYSTEM SETTING page.

\*2 Recording of audio is only possible when the frame rate is set to the same frame rate as set in the REC FORMAT (24PN: 24 frames, 30PN: 30 frames, and 25PN: 25 frames). However, recording of audio is not possible for VFR when the RATE SET AT REC is set to "ON".

Menu setting					Supported Recording Functions				
SYSTEM MODE	REC FORMAT	CAMERA MODE	VFR	FRAME RATE	PRE RECORDING	PROXY	LOOP REC	INTERVAL/ ONE SHOT	
1080-59.94i	DVCPROHD/60i	60i	OFF	Disabled	○	○	○	○	
			ON	1FRAME-30FRAME					
		30P	Fixed to OFF	Disabled					
		24P	Fixed to OFF	Disabled					
	AVC-I 100/60i AVC-I 50/60i	60i	OFF	Disabled	○	○	○	○	
			ON	1FRAME-30FRAME*1	○	○	○	○	
	AVC-I 100/30PN AVC-I 50/30PN	30P	OFF	Disabled	○	○	○	○	
			ON	1FRAME-30FRAME	-	-*2	-	-	
	AVC-I 100/24PN AVC-I 50/24PN	24P	OFF	Disabled	○	○	○	○	
			ON	1FRAME-30FRAME	-	-*2	-	-	
	1080-23.98PsF	AVC-I 100/24PN AVC-I 50/24PN	24P	OFF	Disabled	○	○	○	○
				ON	1FRAME-30FRAME*1 or 24FRAME	-	-*2	-	-
1080-24PsF	AVC-I 100/24PN AVC-I 50/24PN	24P	OFF	Disabled	○	○	○	○	
			ON	1FRAME-30FRAME*1 or 24FRAME	-	-*2	-	-	
1080-50i	DVCPROHD/50i	50i	OFF	Disabled	○	○	○	○	
			ON	1FRAME-25FRAME					
	AVC-I 100/50i AVC-I 50/50i	50i	OFF	Disabled	○	○	○	○	
			ON	1FRAME-25FRAME	○	○	○	○	
	AVC-I 100/25PN AVC-I 50/25PN	25P	OFF	Disabled	○	○	○	○	
			ON	1FRAME-25FRAME	-	-*2	-	-	

○: Supported

-: Not supported

\*1 For 1080/23.98PsF and 1080/24PsF, it is possible to record signals of up to 30 frames on the P2 card if the 24P VFR RANGE is set to "30FRAME". However, since the HD SDI output signal is 23.98PsF or 24PsF, the sequence of the signal will not be maintained correctly if it is set above 25 frames during the VFR recording. The output image becomes unnatural, but this is not a malfunction. 24P VFR RANGE is selected in the <SYSTEM MODE> screen of the SYSTEM SETTING page.

\*2 PROXY recording is only possible when the frame rate is set to the same frame rate as set in the REC FORMAT (24PN: 24 frames, 30PN: 30 frames, and 25PN: 25 frames).

#### ◆ Note

During playback, the formats for clips in the same system mode are switched automatically and played back.

# Adjusting the White balance and Black Balance

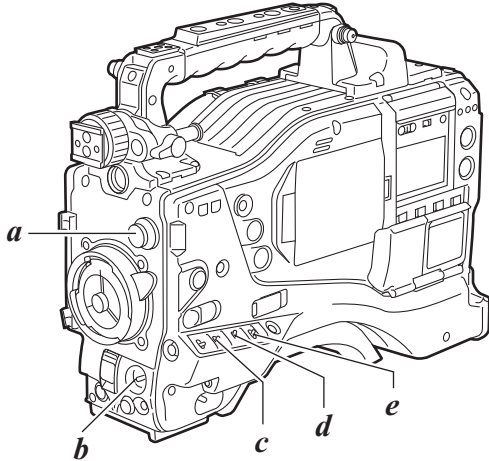
To record high-quality video with the unit, the black and white balances must be adjusted according to conditions. For higher quality, it is recommended that the adjustments should be made in this order AWB (white balance adjustment) → ABB (black balance adjustment) → AWB (white balance adjustment).

## Adjusting the White Balance

Whenever light conditions change, the white balance must be re-adjusted.

To adjust the white balance, follow the steps below.

**1** Set the switches as illustrated below.



**a. CC/ND FILTER control**

**b. AUTO W/B BAL switch:**

Used to perform AWB.

**c. GAIN:** Under normal conditions, set to "0 dB". If it is too dark, an appropriate gain should be set.

**d. OUTPUT:** [CAM]

**e. WHITE BAL:** [A] or [B]

**2** Adjust the CC/ND FILTER control according to the light conditions.

### ◆ Note

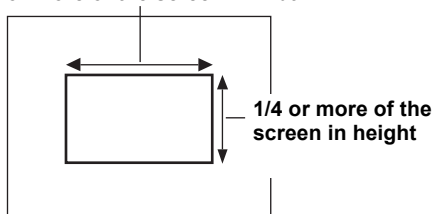
For examples of CC/ND FILTER adjustments, see [Shooting and Recording/Playback Functions Section] (page 19).

**3** Place a white pattern at a point where the light conditions match those for the light source of the subject. Then zoom-in on the white pattern so that white color appears in the screen. A white object (cloth or wall) may be used instead of a white pattern. The illustration below shows the required size for the white space.

### ◆ Notes

- Do not include a high-intensity spot in the screen.
- The white object must appear at the center of the screen.

1/4 or more of the screen in width



**4** Adjust the lens iris.

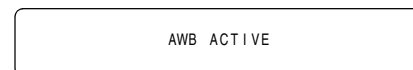
**5** Flip up the AUTO W/B BAL switch so that it is positioned at [AWB], then release it.

The switch returns to the central position with the white balance automatically adjusted.

### ◆ Note

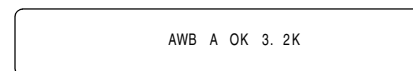
To cancel automatic white balance adjustment in process (the viewfinder displays "AWB ACTIVE"), re-position the AUTO W/B BAL switch at [AWB]. If automatic adjustment is canceled, the value in effect before automatic adjustment will be used.

**6** During an adjustment, the viewfinder displays the following message:



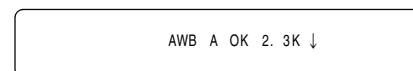
**7** The adjustment will take effect in a few seconds, and the following message will appear:

The adjusted value is automatically stored in the memory specified in step 1 ([A] or [B]).



**8** For the 3200 K CC/ND filter, if the subject's color temperature is lower than 2300 K or higher than 9900 K the following message appears:

If the arrow points down (↓) the actual color temperature is lower than the temperature indicated. If the arrow points up (↑) the actual temperature is higher than the temperature indicated.



### ◆ Note

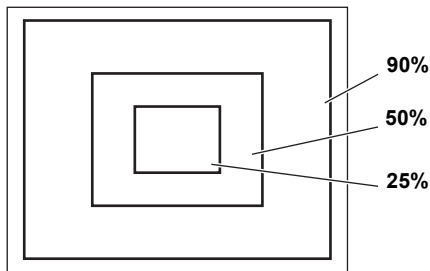
"CHECK FILTER" is displayed on the viewfinder or LCD monitor screen when the power is turned on with CC/ND FILTER located in a midway position. Move the CC/ND FILTER to the correct position (where it will click into place).

## Detection area for the white balance

The detection area for the white balance is selectable between “90%”, “50%” and “25%”, using the menu option AWB AREA.

This option can be found in the <WHITE BALANCE MODE> screen on the CAM OPERATION page.

The detection area is factory-set to “25%”.



## When you have no time to adjust the white balance

Position the WHITE BAL switch at [PRST].

This adjusts the white balance for the filter according to the position of the CC/ND FILTER control.

## When the white balance has not been automatically adjusted

When the white balance has not been successfully adjusted, the viewfinder displays an error message.

If one of the error messages listed below appears, take the appropriate steps, then adjust the white balance again.

If the error message appears after repeated readjustments, the interior of the unit must be inspected. For more information, contact your distributor.

Error message	Description	Remedies
COLOR TEMP HIGH	The color temperature is too high.	Select an appropriate filter.
COLOR TEMP LOW	The color temperature is too low.	Select an appropriate filter.
LOW LIGHT	There is insufficient light.	Increase the light level or gain.
LEVEL OVER	There is too much light.	Decrease the light level or gain.
CHECK FILTER	The FILTER control is displaced.	Check the FILTER control.
TIME OVER	AWB was not completed within the time allowed.	Shooting conditions may be unstable. If flicker occurs, press the shutter and readjust the AWB under stable conditions.

## Retaining white balances

Each value in memory is retained even if the unit is turned off; it will not be lost until the white balance is re-adjusted. White balances are stored in either of two systems: A or B. When the menu option FILTER INH is set to “ON” (default), each system stores only one value. If this is the case, the values are not synchronized with the filters.

This option can be found in the <WHITE BALANCE MODE> screen on the CAM OPERATION page.

When the menu option FILTER INH is set to “OFF”, the adjusted value for each filter can be automatically stored in the memory that corresponds to the position of the WHITE BAL switch ([A] or [B]). Your unit has 4 built-in filters; it stores 8 (4 × 2) adjusted values.

## Setting Color Temperature Manually

The white balance can be manually adjusted by setting the color temperature. Manual color temperature settings can be performed for each of the WHITE BAL switch positions: [PRST], [A] and [B].

The color temperature is set using the menu options COLOR TEMP PRE, COLOR TEMP A, and COLOR TEMP B. These options can be found in the <WHITE BALANCE MODE> screen on the CAM OPERATION page.

### ◆Note

Even if the color temperature has been manually set, automatic adjustment of the white balance (AWB) records the color temperature at the time of AWB at the position where the WHITE BAL switch was located. When the CC filter position is switched, the value for the color temperature changes.

```
→ < WHITE BALANCE MODE >
  FILTER INH      :ON
  SHOCKLESS AWB  :NORMAL
  AWB AREA       :25%
  TEMP PRE SEL SW :VAR

  COLOR TEMP PRE :3200K
  AWB A TEMP     :3200K
  AWB B TEMP     :3200K
```

### Viewfinder displays related to white balance

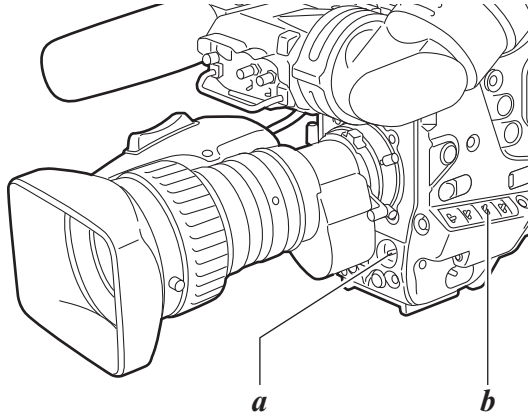
See [Viewfinder Screen Status Displays] (page 76).

## Adjusting the Black Balance

The black balance must be adjusted when:

- You use your unit the first time.
- Your unit has not been used for some time.
- The ambient temperature has changed substantially.
- The gain switchover value has been changed.
- SYSTEM MODE has been changed.

**1** Set the switches as illustrated below.



- a. AUTO W/B BAL switch:**  
Used to perform ABB.
- b. OUTPUT:** [CAM]

**2** Tilt the AUTO W/B BAL switch so that it is positioned at [ABB], then release it.

The switch returns to the central position with the black balance automatically adjusted.

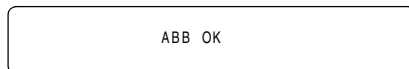
**3** During adjustment, the viewfinder displays the following message:



### ◆Note

During adjustment, the lens iris automatically becomes CLOSE.

**4** The adjustment will take effect in a few seconds and the following message will appear:



The adjusted value is automatically stored in the memory.

### ◆Notes

- Ensure that the lens connector is connected and the lens iris is CLOSE.
- During a black balance adjustment, light is automatically cut off.
- During a black balance adjustment, the gain switchover circuit is automatically switched. The viewfinder screen may flicker and/or display noise; this is not a failure.
- If you find the black shading annoying after performing an auto black balance adjustment, adjust the black shading. To do so, go to the menu option DETECTION (DIG), move the cursor (→), then press the jog dial button. The menu option DETECTION (DIG) can be found in the <BLACK SHADING> screen on the MAINTENANCE page. Note that pressing the ABB switch for longer than 8 seconds automatically performs an auto black balance adjustment, followed by an automatic black shading adjustment. (See the menu option SHD.ABB SW CTL in [SW MODE] (page 193).) However, when the remote control unit (AJ-RC10G, optional) is connected, automatic black shading cannot be executed even if the ABB switch is held down.
- To cancel the automatic black balance adjustment in process (the viewfinder displays "ABB ACTIVE"), flip the AUTO W/B BAL switch down to [ABB] again. If automatic adjustment is canceled, the value in effect before automatic adjustment will be used.

### Retaining black balances

Each value in memory is retained even if the unit is turned off.

# Setting the Electronic Shutter

This section provides a description of the electronic shutter, together with setting and handling directions.

## Shutter Modes

The table below lists the shutter modes in which the unit's electronic shutter can be used as well as the shutter speeds which can be selected.

### To use the fixed shutter speed

- For eliminating flicker due to lighting
- For shooting fast moving subjects clearly

### To use the shutter speed of SYNCHRO SCAN

- For shooting monitor screens in a way that minimizes the pattern of horizontal lines
- For shooting images when adding effects to the subjects' movement

#### SYNCHRO SCAN:

Shutter is set using angle (deg) irrespective of frame rate.

#### SYNCHRO SCAN2:

Shutter is set using time (sec) irrespective of frame rate.

### To use the half shutter speed (HALF)

- For shooting images when adding effects as if taken with film

#### ◆ Notes

- No matter in which mode the electronic shutter is used, the higher the shutter speed, the lower the camera's sensitivity.
- When the aperture is in the automatic mode, it will increasingly open and the depth of focus will become shallower as the shutter speed is increased.
- By setting the shutter speed on the time axis (1/60, 1/100, 1/120, 1/250, 1/500, 1/1000, 1/2000), the frame rate can be varied while keeping the exposure constant. This is equivalent to Ramping (compensating for changes in the frame rate using shutter angle) in a conventional film camera.

Video system		Fixed shutter speed	Half shutter speed	Variable range for SYNCHRO SCAN		Variable range for SYNCHRO SCAN2	
SYSTEM MODE	CAMERA MODE	Time/Angle display	Time display	Time display	Angle display	Time display	Angle display
1080-59.94i	60i	1/60, 1/100, 1/120, 1/250, 1/500, 1/1000, 1/2000, HALF  180.0 deg, 172.8 deg, 144.0 deg, 120.0 deg, 90.0 deg, 45.0 deg	1/120	1/61.7 - 1/7200 1/F* - 1/7200	3.0 - 350.0 deg (In 0.5 deg steps)	1/60.0 - 1/250 1/F* - 1/250	Angle not displayed
	30P		1/60	1/30.9 - 1/3600 1/F* - 1/3600		1/30.0 - 1/250 1/F* - 1/250	
	24P		1/48	1/24.7 - 1/2880 1/F* - 1/2880		1/24.0 - 1/250 1/F* - 1/250	
	24PA		1/48	1/24.7 - 1/2880 1/F* - 1/2880		1/24.0 - 1/250 1/F* - 1/250	
1080-23.98PsF	24P	Select from the 14 types above	1/48	1/24.7 - 1/2880 1/F* - 1/2880		1/24.0 - 1/250 1/F* - 1/250	
1080-24PsF	24P		1/48	1/24.7 - 1/2880 1/F* - 1/2880		1/24.0 - 1/250 1/F* - 1/250	
1080-50i	50i	1/50, 1/60, 1/120, 1/250, 1/500, 1/1000, 1/2000, HALF  180.0 deg, 172.8 deg, 144.0 deg, 120.0 deg, 90.0 deg, 45.0 deg	1/100	1/51.4 - 1/6000 1/F* - 1/6000		1/50.2 - 1/250 1/F* - 1/250	
	25P		1/50	1/25.7 - 1/3000 1/F* - 1/3000		1/25.2 - 1/250 1/F* - 1/250	

\* F displays the frame rate frequency for VFR. For example, if the VFR recording was done with a frame rate frequency of 15, the range of the SYNCHRO SCAN will be from 1/15.



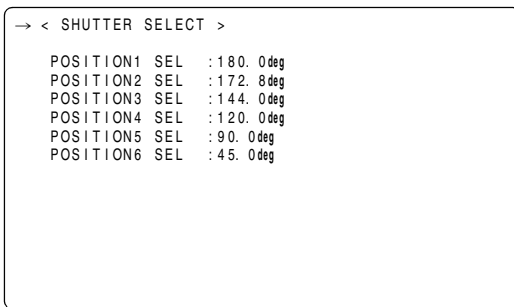
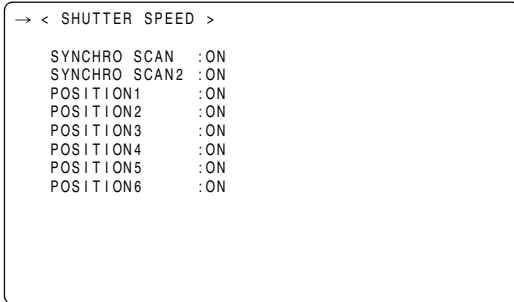
## Setting the Shutter Mode and Speed

The shutter speed in any shutter mode is set using the SHUTTER switch.

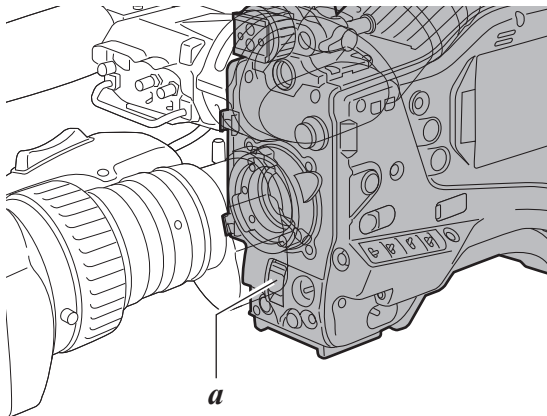
In SYNCHRO SCAN/SYNCHRO SCAN2 mode, shutter speed can be switched easily, using the SYNCHRO SCAN adjustment buttons (+/-) on the side panel.

Note that the range of selectable shutter speeds may be pre-defined; whether or not to use the SYNCHRO SCAN mode may be determined through the <SHUTTER SPEED> and <SHUTTER SELECT> screens. These screens are found in the CAM OPERATION page.

The selected shutter speed is retained even if the unit is turned off.

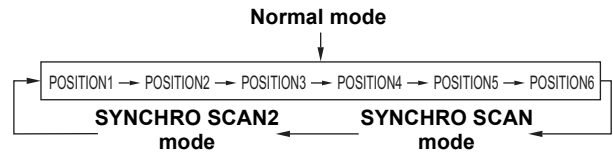


- 1 Press the SHUTTER switch, positioned at [ON], towards [SEL].



a. SHUTTER switch

- 2 Once more, press the SHUTTER switch towards [SEL]. Repeat this switchover until the desired mode or speed appears in the viewfinder screen. If all modes and speeds are available, the display changes in the following order:



### Viewfinder displays relating to the shutter

See [Viewfinder Screen Status Displays] (page 76).

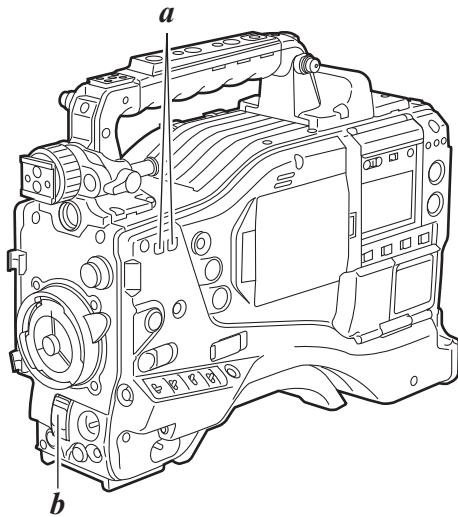
#### ◆ Note

When recording using VFR, set the shutter speed to 1/60 or 1/100 to allow the recording to continue without any change in brightness when the frame rate is changed mid-way through recording.

## Placing the Unit in SYNCHRO SCAN Mode

To place the unit in SYNCHRO SCAN mode, follow the steps below.

- 1** Press the SHUTTER switch positioned at [ON] towards [SEL], to place the unit in SYNCHRO SCAN mode or SYNCHRO SCAN2 mode.
- 2** In the SYNCHRO SCAN mode, it is possible to change the shutter speed continuously by operating the SYNCHRO SCAN (+/-) adjustment buttons.



- a. SYNCHRO SCAN adjustment buttons (+/-)**  
**b. SHUTTER switch**

- 3** In SYNCHRO SCAN mode, the shutter speed display can be switched between seconds and degrees. For more details, refer to [SYNCHRO SCAN DISP.] (page 185).
  - In SYNCHRO SCAN2 mode, the shutter speed can only be displayed in seconds.
  - When the frame rate is low, pressing the SYNCHRO SCAN adjustment buttons (+/-) to change the shutter speed only gives a small change in the time, and consequently the shutter value in the viewfinder display may remain unchanged.

---

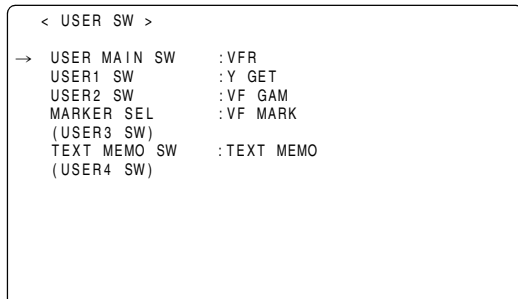
### ◆ Note

When the VFR function is enabled, the variable ranges in the SYNCHRO SCAN mode differs from those seen when the VFR function is disabled.

# Assigning Functions to User Buttons

The USER MAIN, USER 1, USER 2, MARKER SELECT and TEXT MEMO buttons can be assigned user-selected functions.

To select desired functions, use the menu options which can be found in the <USER SW> screen on the CAM OPERATION page.



## Selectable Functions

For more details about functions which can be allocated to the buttons, refer to [USER SW] (page 192).

- INH:** No function assigned.
- I.OVR:** Iris Override function assigned.  
The target (reference) value in Auto Iris mode must be changed.  
To change the target value, put the unit into this mode and press the jog dial button. Turn the jog dial button clockwise or anti-clockwise to change the value. The iris indication section of the viewfinder screen displays “+”, “+ +”, “-”, or “- -”.  
When the desired value is displayed, stop turning the jog dial button. Then, press the dial button to accept that value.  
+ : Iris opens up by 0.5.  
+ + : Iris opens up by 1.  
- : Iris closes down by 0.5.  
- - : Iris closes down by 1.  
**No indication:**  
The reference value is used.
- S.BLK:** Super Black function assigned.  
This function lowers the black level to the pedestal level or below.
- B.GAMMA:** The black gamma function is allocated. This function highlights the black gradations. BLACK GAMMA is set to “+6”, and B.GAMMA RANGE is set to “3”, regardless of the values set in the BLACK GAMMA item on the menu (<LOW SETTING> screen, <MID SETTING> screen and <HIGH SETTING> screen on the PAINT page).
- Y GET:** Function of indicating the brightness level of the center marker assigned.
- DRS:** The function of the dynamic range stretcher is allocated.  
The function is allocated to compress the video level with high brightness and stretched the dynamic range.

### ◆ Notes

- Since the DRS function compresses the video levels of sections with high brightness, there are slight

differences in color development when the DRS function is turned on/off.

- When the DRS function is turned on, Gamma mode, the Knee function and the BLACK GAMMA function are not available.

**ASSIST:** The function to turn on or off of the focus assist indication is assigned.

### ◆ Note

When the ASSIST function is turned on, a graph is displayed on the bottom right of the viewfinder and the LCD monitor. Adjust the focus ring on the lens so that the graph comes further right.

**C.TEMP:** The function to switch to the mode that allows the jog dial button to change the assigned color temperature. It is useful for intentionally changing the color temperature after adjusting the white balance.

To change the color temperature, press the user button with this assigned function, and then press the jog dial button.

The color temperature indicated on the viewfinder display is highlighted and starts blinking, indicating that the color temperature can be changed. While the indication is blinking, the jog dial button can be turned to change the color temperature. At this time, the value set for the position ([PRST], [A], or [B]) to which the WHITE BAL switch is set is also changed.

**VFR:** The function of switching the VFR function on/off is assigned. For more details about the VFR function, refer to [Variable Frame Rate (VFR) Recording Function] (page 38).

**FRATE:** When “ON” has been selected in the VFR menu option, a function of switching to the frame rate set in USR SW F.RATE is assigned.

For example, if you have set FRAME RATE to “24P” and USR SW F.RATE to “12P” for the VFR function, you can use this button to switch between 12P and 24P when the VFR function is enabled. FRAME RATE and USR SW F.RATE can be set from the <SYSTEM MODE> screen of the SYSTEM SETTING page.

**VF GAM:** When “FILM-REC” has been selected in the GAMMA MODE SEL menu option, telecine conversion correction is performed on the viewfinder video. GAMMA MODE SEL can be set from the <GAMMA> screen of the PAINT page.

- AUDIO CH1:** Function of switching the input signal source for audio channel 1 assigned.  
Pressing the button switches the input signal in the following order: FRONT → W.L. → REAR. Note that the AUDIO IN switch can also be used to change the input signal: later specification takes precedence.
- AUDIO CH2:** Function of switching the input signal source for audio channel 2 assigned.  
Pressing the button switches the input signal in the following order: FRONT → W.L. → REAR. Note that the AUDIO IN switch can also be used to change the input signal: later specification takes precedence.
- REC SW:** Function of the REC START button assigned.
- RET SW:** Function of the RET button at the lens assigned.
- PRE REC:** PRE RECORDING switch on/switch off function assigned.
- SLOT SEL:** Function of switching the target P2 card among multiple cards assigned. Not available when recording with the VFR function is "ON".
- PC MODE:** The function to turn on or off the assigned USB device or USB host mode.  
Switching between the USB device and USB host modes is set by selecting the PC MODE SELECT menu option in the <SYSTEM MODE> screen on the SYSTEM SETTING page.
- TEXT MEMO:** Function of switching the text memo function on/off is assigned. For more details about the text memo function, refer to [Text Memo Function] (page 47). This switching function can only be assigned to the TEXT MEMO button.
- VF MARK:** Function to select A, B or OFF as the marker for recording in the viewfinder. The A or B marker type is set using the <VF MARKER> screen of the VF page. This switching function can only be assigned to the MARKER SELECT button.

---

#### ◆ Notes

- When the remote controller, AJ-RC10G (optional), is connected and I.OVR or C.TEMP is assigned to the user button on the side of the AJ-RC10G, operation of the jog dial button on the main unit is disabled.
- The following functions are turned off when the power of the main unit is switched off.  
I.OVR/S.BLK/B GAMMA/Y GET/DRS/ASSIST/C.TEMP/  
FRATE/VF GAM  
With regard to C.TEMP, note that the changes in color temperature will be stored.

# Selecting Audio Input Signals and Adjusting Recording Levels

This unit is capable of recording 4 independent audio channels in all recording formats except for native recording with VFR. When the AUDIO SELECT CH1/CH2 switch is positioned at [AUTO], the recording levels for audio channels 1 and 2 are automatically adjusted. To manually adjust the recording levels, position the switch at [MAN]. Note that the recording levels for audio channels 3 and 4 are selected through a menu option.

## ◆ Note

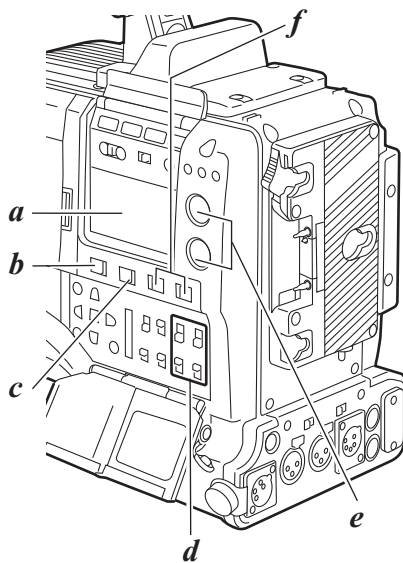
4-channel sound is recorded on P2 cards.

## Selecting Audio Input Signals

The input signals to be recorded on audio channels 1, 2, 3, and 4 are selected with the AUDIO IN switch. For more information, see [Audio (input) Function Section] (page 17).

Specific audio settings are performed through the <MIC/AUDIO1> and <MIC/AUDIO2> screens on the MAIN OPERATION page.

For more information, see [MAIN OPERATION] (page 195).



- a. Display window
- b. MONITOR CH1/3 / ST / CH2/4 selector switch
- c. MONITOR SELECT CH1/2 / CH3/4 selector switch
- d. AUDIO IN switch (CH1/CH2/CH3/CH4)
- e. AUDIO LEVEL CH1/CH2 controls
- f. AUDIO SELECT CH1/CH2 switch

```

-> < MIC/AUDIO1 >

FRONT VR CH1      :OFF
FRONT VR CH2      :OFF
MIC LOWCUT CH1    :OFF
MIC LOWCUT CH2    :OFF
MIC LOWCUT CH3    :OFF
MIC LOWCUT CH4    :OFF
LIMITER CH1      :OFF
LIMITER CH2      :OFF
AUTO LEVEL CH3    :ON
AUTO LEVEL CH4    :ON
TEST TONE         :NORMAL
    
```

```

-> < MIC/AUDIO2 >

FRONT MIC POWER   :ON
REAR MIC POWER    :ON
MONITOR SELECT    :STEREO
FRONT MIC LEVEL   :-40dB
REAR MIC CH1 LEVEL : -60dB
REAR MIC CH2 LEVEL : -60dB
REAR LINE IN LVL  : +4dB
AUDIO OUT LVL     : +4dB
HEADROOM          : 20dB
WIRELESS WARN     :OFF
WIRELESS TYPE     :SINGLE
    
```

## ◆ Notes

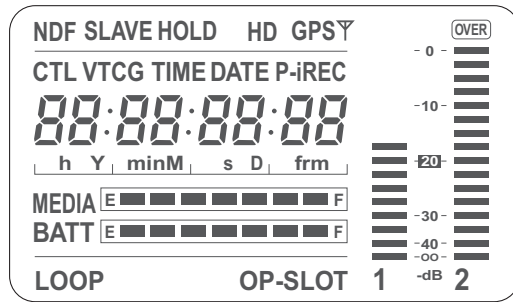
- Four-channel-recorded audio signals are SDI-output as they are.
- When using VFR with native recording, audio cannot be recorded or output.

## Adjusting Recording Levels

To adjust the recording levels for audio channels 1 and 2, follow the steps below.

- 1 Position the MONITOR SELECT CH1/2 / CH3/4-selector switch at [CH1/2] so that the audio level meter on the display window will provide CH1 and CH2 indications. Ensure that the channel indications displayed in the window are "1" and "2".  
Whether to enable or disable the FRONT AUDIO LEVEL control must be preset through menu options FRONT VR CH1 and FRONT VR CH2. Note that this control is factory-disabled.  
The menu options are found in the <MIC/AUDIO1> screen on the MAIN OPERATION page.
- 2 Position the AUDIO SELECT CH1/CH2 switch at [MAN].
- 3 While checking the audio channel level meter in the display window or the audio level meter in the viewfinder, adjust the AUDIO LEVEL CH1/CH2 control. Note that if the level exceeds the top bar (0 dB), the word "OVER" illuminates to show that the input level is excessive. The adjustment made in such a way that the maximum level will not reach the 0 dB bar.

Audio level meter on the display window



Audio level meter in the viewfinder

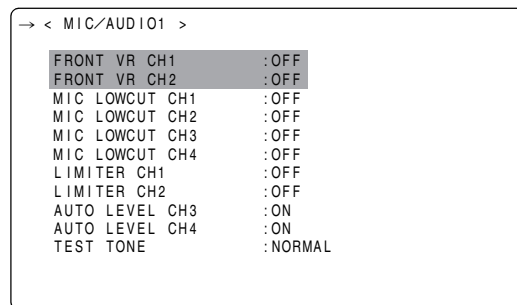


When operating the unit without a sound recordist, it is recommended that the FRONT AUDIO LEVEL control should be used to adjust the audio level. Preset the channel to be adjusted, and use the FRONT AUDIO LEVEL control to adjust the audio level while checking the audio level meter in the viewfinder to ensure that the level does not become excessive.

## Selecting Function for the FRONT AUDIO LEVEL Control

This function enables the recording level to be adjusted using the FRONT AUDIO LEVEL control.

To select this function, perform menu operations to open the <MIC/AUDIO1> screen from the MAIN OPERATION page, and set whether to enable or disable the FRONT AUDIO LEVEL controls for the system selected as the input signals using the FRONT VR CH1 and FRONT VR CH2 items.



## CH3 and CH4 Recording Levels

The following table shows the effects on the recording level for audio channels 3 and 4 that depend on the settings and input levels specified through the menu options AUTO LEVEL CH3 and AUTO LEVEL CH4. Note that the recording level cannot be adjusted manually.

These options are found in the <MIC/AUDIO1> screen on the MAIN OPERATION page.

AUTO LEVEL CH3/CH4	Input level	
	LINE	MIC
ON	AGC ON	AGC ON
OFF	AGC/LIMITER OFF	LIMITER ON

# Setting Time Data

The unit supports time codes, user bits, date, and time (real time) data, which are recorded as data for the sub-code area, VIDEO AUX area, and clip metadata files. It also includes a CTL counter and camera ID.

## Description of time data

### Time code

The TCG switch can be used to switch between Rec run and Free run.

Free run: The time code always advances even when the power is turned off. It can be handled as time. It can be slaved to the time code input through the TC IN connector.

Rec run: The time code is recorded as sequential values regenerated as the time code for a clip recorded on a P2 card.

#### ◆ Note

When using VFR, native recording is limited to Rec run. Free run operation is not possible.

### User bits

The unit separately includes 2 types of user bits: one (UB) is recorded in the sub-code area and the other (VITC UB) in the VIDEO AUX area.

Each user bits can be recorded as any of the following: a user defined value, time, date, same value as the time code, frame rate information for camera shooting, externally input value (through the TC IN), and value regenerated as the user bits recorded in a clip on a P2 card.

The unit includes only one user defined value. If user defined values are selected for both the UB and VITC UB, then the same value is used.

Types of UB can be selected in UB MODE and types of VITC UB can be selected in VITC UB MODE, respectively. However, in the following cases, at least one of UB and VITC UB is always frame rate information in order to support editors (PC software of the like) which make use of information about the frame rate employed at shooting.

- For recording 24P/24PA in 1080i mode, VITC UB is fixed to frame rate information.
- In Native mode, VITC UB is fixed to frame rate information.

### Date and time (real time)

The built-in clock maintains the date and time. When the GPS unit AJ-GPS910G is installed, the built-in clock is corrected with accurate date and time information from the GPS.

The built-in clock is used not only to keep track of the Free run time code when the power is switched off and to provide time and date data for the user bits, but also as a time reference when generating files during clip recording and to determine the arrangement and playback order of thumbnails.

It is also used to generate clip metadata and UMIDs (Unique Material Identifiers) in the VIDEO AUX area.

### CTL counter

The CTL counter will measure total recording time after resetting in the recording operation. At playback, CTL is counted from the start of the first clip that can be played back. This can be used to find the current playback position.

### Camera ID

The camera ID can be set with 10 characters × 3 lines, which can be superimposed on the color bar video. It can be also superimposed along with date and time data.

## Recording time code and user bits

The following shows recording time codes and user bits for different input signal formats, and SYSTEM MODE and CAMERA MODE settings.

System setting						Time code (TC) operation				User bit (UB) operation				
SYSTEM MODE	REC FORMAT	CAMERA MODE	VFR	VFR FRAME RATE	Recording frame mode*7	Sub-codes and VIDEO AUX area TC	No. of frames of TC during recording and presetting	No. of frames of the output TC	No. of frames of the displayed TC	UB in sub-code area	UB in VIDEO AUX area (VITC UB)			
1080-59.94i	DVCPROHD/60i	60i	OFF	Disabled	59.94i	As per the TC MODE*2	30	30	30/24 switchable	As per the UB MODE*4	As per the VITC UB MODE			
			ON	1-30FRAME	59.94i (Over 59.94i)									
		30P	Fixed to OFF	Disabled	29.97P (Over 59.94i)	Always non-drop frame*3								
		24P	Fixed to OFF	Disabled	23.98P (Over 59.94i)									
	AVC-I 100/60i AVC-I 50/60i	60i	OFF	Disabled	59.94i	As per the TC MODE*2								
			ON	1-30FRAME	59.94i (Valid for all frames)	Always non-drop frame*3				Always frame rate information*1				
	AVC-I 100/30PN AVC-I 50/30PN	30P	OFF	Disabled	29.97P-29.97PN (Native)	As per the TC MODE*2								
			ON	1-30FRAME	0.997-29.97P-29.97PN (Native)	As per the TC MODE Always Rec run				As per the UB MODE*4*6	Always frame rate information*5			
	AVC-I 100/24PN AVC-I 50/24PN	24P	OFF	Disabled	23.98P-23.98PN (Native)	Always non-drop frame*3				24	30	Recording: 24 fixed Playback: 30/24 switchable	As per the UB MODE*4*6	Always frame rate information*5
			ON	1-30FRAME	0.997-29.97P-23.98PN (Native)	Always non-drop frame Always Rec run								
1080-23.98PsF	AVC-I 100/24PN AVC-I 50/24PN	24P	OFF	Disabled	23.98P-23.98PN (Native)	Always non-drop frame*3	24	HD SDI A : B: 24 Otherwise: 30	Recording/ Playback: 24	As per the UB MODE*4*6	Always frame rate information*5			
			ON	1-30FRAME or 24FRAME	0.997-23.98P-23.98PN (Native) or 0.997-29.97P-23.98PN (Native)	Always non-drop frame Always Rec run								
1080-24PsF	AVC-I 100/24PN AVC-I 50/24PN	24P	OFF	Disabled	24P-24PN (Native)	Always non-drop frame*3	24	HD SDI A : B: 24 Otherwise: 30	Recording/ Playback: 24	As per the UB MODE*4	Always frame rate information*5			
			ON	1-30FRAME or 24FRAME	1-24P-24PN (Native) or 1-30P-30PN (Native)	Always non-drop frame Always Rec run								
1080-50i	DVCPROHD/50i	50i	OFF	Disabled	50i	As per the TC MODE*2	25	25	25	As per the UB MODE*4	As per the VITC UB MODE			
			ON	1-25FRAME	50i (Over 50i)									
	50P	Fixed to OFF	Disabled	25P (Over 50i)	Always Rec run									
		AVC-I 100/50i AVC-I 50/50i	50i	OFF		Disabled				50i	As per the TC MODE*2	As per the UB MODE*4*6	Always frame rate information*5	
	ON	1-25FRAME		50i (Over 50i)	Always Rec run									
		AVC-I 100/25PN AVC-I 50/25PN	25P	OFF	Disabled	25P-25PN (Native)				As per the TC MODE*2	25	25	As per the UB MODE*4*6	Always frame rate information*5
ON	1-25FRAME			1-25P-25PN (Native)	Always Rec run									

\*1 If the menu option FRAME RATE UB on the <OPTION> screen is set to "MENU", then recording is performed as per the UB MODE or VITC UB MODE. Note that, with this setting, information required by editors (PC editing software) is not recorded.

\*2 For Free run, the time code is slaved to the time code input through the TC IN connector.

\*3 For Free run, the time code is slaved to the time code input through the TC IN connector if it is a non-drop frame.

\*4 When the menu option UB MODE is set to "EXT", then the bits are slaved to the user bits input through the TC IN connector.

\*5 Regardless of the menu settings, frame rate information is always recorded. During playback, the information is output after being converted into pull-down frame rate information.

\*6 When the menu option UB MODE is set to "FRM RATE", the pull-down frame rate information read out from the UB in the VAUX area is output during playback.

\*7 For details on this item, refer to [Recording formats and output connector signal formats] (page 50).



## Setting of the user bits

The user bits (UB) to be recorded in the sub-code area are selected through the menu option UB MODE. The user bits (VITC UB) to be recorded in the VIDEO AUX area are selected through the menu option VITC UB MODE.

### USER (UB MODE only)

The included user value is recorded. A user value is input through the display window. For more information about how to input a user value, see [Inputting a user value] (page 65). The recorded user value is retained even if the power is turned off.

### TIME

The time kept by the built-in clock is recorded.

### DATE

The hour digits for date and time kept by the built-in clock are recorded.

### EXT (UB MODE only)

The user bits value input through the TC IN connector is recorded.

The included user's value will also be this input value.

### TCG

The time code value is recorded.

### FRM RATE

The frame rate information for camera shooting is recorded. For more information, see [Frame rate information recorded in user bits] (page 66).

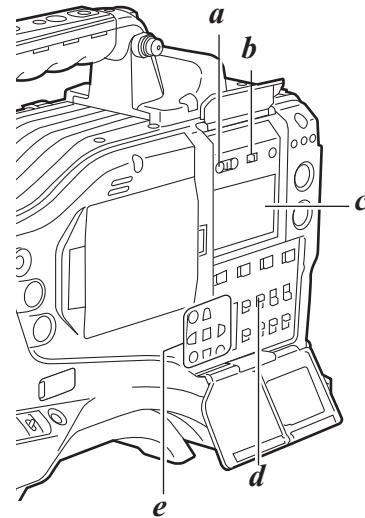
### REGEN

The user bits last recorded on the current target P2 card is read and recorded as is.

### USER/EXT (VITC UB MODE only)

The included user's value is recorded as the user bits for the VIDEO AUX area. It is the same value as the user bits indicated when the option UB MODE is set to "USER" or "EXT".

## Inputting a user value



- a. HOLD switch
- b. DISPLAY switch
- c. Display window
- d. TCG switch
- e. Cursor and SET buttons

- 1 Position the DISPLAY switch at [UB].
- 2 Position the TCG switch at [SET].  
When the left digit starts blinking you can change the value.
- 3 Use cursor buttons to set the user bits.
  - ▷ **button:**  
Shifts the target (blinking) digit to the right.
  - ◁ **button:**  
Shifts the target (blinking) digit to the left.
  - △ **button:**  
Advances the blinking number by one digit.
  - ▽ **button:**  
Winds back the blinking number by one digit.
- 4 Position the TCG switch at [F-RUN] or [R-RUN].
- 5 Go to the <TC/UB> screen from the MAIN OPERATION page, and set the menu option UB MODE to "USER".

### ◆ Notes

- When the TCG switch is positioned at [SET], thumbnails cannot be manipulated.
- To confirm VITC UB, press the HOLD switch to display VITCG on the display window.

## Retaining the user bits

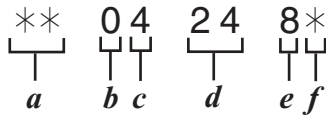
The data set for the user bits are automatically saved and retained even if the unit is turned off.

## Frame rate information recorded in user bits

If video information to be recorded based on the frame rate set through the menu option FRAME RATE or CAMERA MODE is recorded in the user bits, it can be edited with editing tools (e.g. PC editing software). In 1080i mode, the frame rate information for the user bits recorded in the VIDEO AUX area are used.

## Frame rate information

The frame rate and video pull-down menu are linked to the time code and user bits as follows:



- a. Checking information for the 6 digits at right.
- b. Fixed value
- c. Sequence No.  
0 to 4: 24P, 24PA  
Fixed at F: In all other modes
- d. Frame rate
- e. Camera shooting mode
- f. Media management information
  - Updated frame/Effective frame information
  - REC START/STOP mark

## For 1080i

### Frame rate: 24P Over 60i (2:3)

Starting field for the updated frame

Time code frame digit

00 01 02 03 04 05 06 ... 23 24 25 26 27 28 29

Image

A0Ae B0Be BcCe CcDe DcDe A0Ae B0Be ... CcDe DcDe A0Ae B0Be BcCe CcDe DcDe

Sequence No.

0 1 2 3 4 0 1 ... 3 4 0 1 2 3 4

Updated frame information

10 10 01 01 00 ... 01 00 10 10 01 01 00

### Frame rate: 24PA Over 60i (2:3:3:2)

Time code frame digit

00 01 02 03 04 05 06 ... 23 24 25 26 27 28 29

Image

A0Ae B0Be BcCe CcDe DcDe A0Ae B0Be ... CcCe DcDe A0Ae B0Be BcCe CcCe DcDe

Sequence No.

0 1 2 3 4 0 1 ... 3 4 0 1 2 3 4

Updated frame information

10 10 01 00 10 ... 00 10 10 10 01 00 10

### Frame rate: 30P Over 60i (2:2) 25P Over 50i (2:2)

Time code frame digit

00 01 02 ...

Image

A0Ae B0Be CcCe ...

Updated frame information

10 10 10 ...

### ◆ Note

During playback of clips recorded in native recording frame rate information of user bits is converted according to the image pull down and then output.

Example: Recording

\*\* 0F 24 C\*

Playback

\*\* 0# 24 8\*

# indicates sequence Nos. 0 to 4.

## Setting the Internal Clock's Date and Time

- 1 Position the DISPLAY switch at [UB].
- 2 Press the HOLD button to display DATE in the display window.
- 3 Position the TCG switch at [SET].
- 4 Use the cursor and SET buttons to set the year, month and day (Y/M/D).  
Note that any later than 2030 cannot be set.
  - ▷ **button:**  
Shifts the target (blinking) digit to the right.
  - ◁ **button:**  
Shifts the target (blinking) digit to the left.
  - △ **button:**  
Advances the blinking number by one digit.
  - ▽ **button:**  
Winds back the blinking number by one digit.
- 5 Press the HOLD button to display TIME in the display window.
- 6 Use the cursor buttons to set the hour, minute and second (h/min/s).
- 7 Position the TCG switch at [F-RUN] or [R-RUN]. The internal clock starts at the moment the switch position is changed.
- 8 Press the HOLD button to display a time zone (time difference between local time and Greenwich Mean Time) in the display window.
- 9 Position the TCG switch at [SET].
- 10 Use the △ and ▽ buttons to set the desired hours and minutes ahead of (no sign) or behind (– sign) the Greenwich Mean Time.  
  
Example: If the local time is 5 hours behind Greenwich Mean Time, set the time zone to “5:00 –”.  
  
The time zone is always recorded, together with the date and time, as metadata.  
See the table at right to set the time zone according to your local time.
- 11 Position the TCG switch at [F-RUN] or [R-RUN] to accept the time zone.

### ◆ Notes

- When using the unit for the first time, be sure to perform this setting beforehand. Do not change the setting during use of the unit.
- When the TCG switch is positioned at [SET], thumbnails cannot be manipulated.

Time difference	Area	Time difference	Area
00:00	Greenwich	–12:00	Kwajalein
+00:30		–11:30	
+01:00	Central Europe	–11:00	Midway Island
+01:30		–10:30	
+02:00	Eastern Europe	–10:00	Hawaii
+02:30		–09:30	Marquesas Islands
+03:00	Moscow	–09:00	Alaska
+03:30	Tehran	–08:30	
+04:00	Abu Dhabi	–08:00	Los Angeles
+04:30	Kabul	–07:30	
+05:00	Islamabad	–07:00	Denver
+05:30	Bombay	–06:30	
+06:00	Dacca	–06:00	Chicago
+06:30	Yangon	–05:30	
+07:00	Bangkok	–05:00	New York
+07:30		–04:30	
+08:00	Beijing	–04:00	Halifax
+08:30		–03:30	Newfoundland Island
+09:00	Tokyo	–03:00	Buenos Aires
+09:30	Darwin	–02:30	
+10:00	Guam	–02:00	Mid-Atlantic
+10:30	Lord Howe Island	–01:30	
+11:00	Solomon Islands	–01:00	Azores Islands
+11:30	Norfolk Island	–00:30	
+12:00	New Zealand		
+12:45	Chatham Islands		
+13:00			

### ◆ Notes

- In step 4, if the TCG switch is positioned at [F-RUN] or [R-RUN], this also activate the internal clock.  
To cancel date, time and time zone settings in process, hold down the SET button and position the TCG switch at [F-RUN] or [R-RUN].
- Clock accuracy fluctuates between about ±30 seconds per month when the power is turned off. If more accurate timekeeping is required, check the time when the power is turned on and, if necessary, reset the clock.  
When the GPS unit AJ-GPS910G is installed, and if it successfully receives time information, the internal clock keeps accurate (local) time based on the received time (Greenwich Mean Time) and the time zone. If the date and time differ from the actual local time, the time zone may not be set correctly. Check again, to see if the time zone is set correctly. (The date and time need not be set again.)
- The built-in clock operates for several years on a lithium battery built into the unit. When the lithium battery is exhausted, the viewfinder indicates the message “BACKUP BATT EMPTY” when the power is turned on. For more information, see [Maintenance] (page 155).

## Setting the Time Code

- 1 Position the DISPLAY switch at [TC].
- 2 Position the TCG switch at [SET].
- 3 Set the menu option TC MODE to "DF" or "NDF". "DF" steps the time code in drop frame mode, and "NDF" steps it in non-drop frame mode. However, the camera always operates in "NDF" for 24P, 24PA and 24PN (Native) modes.  
The menu option TC MODE can be found in the <TC/UB> screen on the MAIN OPERATION page.

### ◆Note

Switching between "DF" and "NDF" is operative only when the system frequency of the unit is set to 59.94 Hz.

- 4 Use the cursor buttons to set the time code.  
The time code setting range extends from 00:00:00:00 to 23:59:59:29 (59.94 Hz), 23:59:59:23 (24PN) or to 23:59:59:24 (50 Hz).  
▷ **button:** Shifts the target (blinking) digit to the right.  
◁ **button:** Shifts the target (blinking) digit to the left.  
△ **button:** Advances the blinking number by one digit.  
▽ **button:** Winds back the blinking number by one digit.
- 5 Change the position of the TCG switch.  
[F-RUN] steps the time code in Free run mode, and [R-RUN] set it in Rec run mode.

### ◆Notes

- When the unit is in the 24P or 24PA mode, time code settings are adjusted to the 5-frame unit. For 24PN (Native) mode, it is adjusted for counting by the 4-frame unit. The time code cannot be set when recording in the 24P, 24PA, and 24PN (Native) formats.
- When the TCG switch is positioned at [SET], thumbnails cannot be manipulated.

## Regeneration of Time Code

When the TCG switch is positioned to [R-RUN], the time code recorded on the last frame of the last recorded clip (with the latest recording date) on the P2 card is read, and this time code can be used again.

When the menu option FIRST REC TC is set to "REGEN" and a P2 card is removed or inserted or the target recording card is changed with the user button assigned the SLOT SEL function, the same time code is added to the last recorded clip on the target P2 card. When no clips have been recorded, recording starts from a value generated by a time code generator in the unit.

The menu option FIRST REC TC can be found in the <TC/UB> screen on the MAIN OPERATION page.

## Regeneration function using REC REVIEW

If the menu option FIRST REC TC is set to "PRESET", if the time code has been set or reset, or if the time code has been switched from Free run to Rec run, it is possible to regenerate the time code as the last time code of a clip recorded on the P2 card.

This action requires you to preset the RET SW menu option on the <SW MODE> screen to "R.REVIEW" and the REC REVIEW REGEN menu option on the <TC/UB> screen to "ON".

- 1 Make sure the P2 card to record the data. To regenerate the time code of the last recorded clip when more than one P2 card is inserted, press the THUMBNAIL button to open the thumbnail screen.
- 2 Check the P2 card which recorded the last clip displayed on the screen, and then switch the slot with the user button assigned the SLOT SEL function so that data will be recorded on the P2 card.
- 3 Press the RET button on the lens. The message "TC REGEN" is displayed in the viewfinder. During the next recording, the time code of the last recorded clip on the card will be regenerated.

### ◆Notes

- When a card with recorded data is changed, the time code of the last recorded clip on the changed P2 card will be regenerated.
- This function is disabled during recording or Free run.

## Time code function during battery replacement

Even during battery replacement, the backup mechanism functions, allowing the unit to operate continuously. If SYSTEM MODE is changed, a free-run time code may shift. After turning on the power again, confirm the time code and reset if necessary.

### ◆Note

When the POWER switch has been switched [ON] → [OFF] → [ON], the backup accuracy of the time code in Free run mode is about ±2 frames.

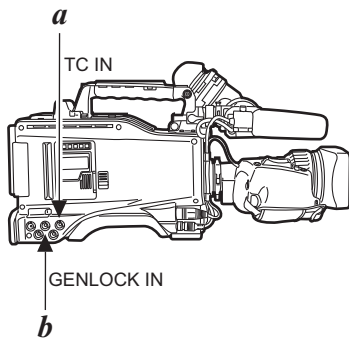
## Externally Locking the Time Code

The unit's internal time code generator can be locked to an external generator. In addition, the external time code generator can be locked to the unit's internal generator.

### Example of connections for external locking

As the figure shows, connect both the reference video signal and reference time code.

**Example 1:** When locking onto an external signal

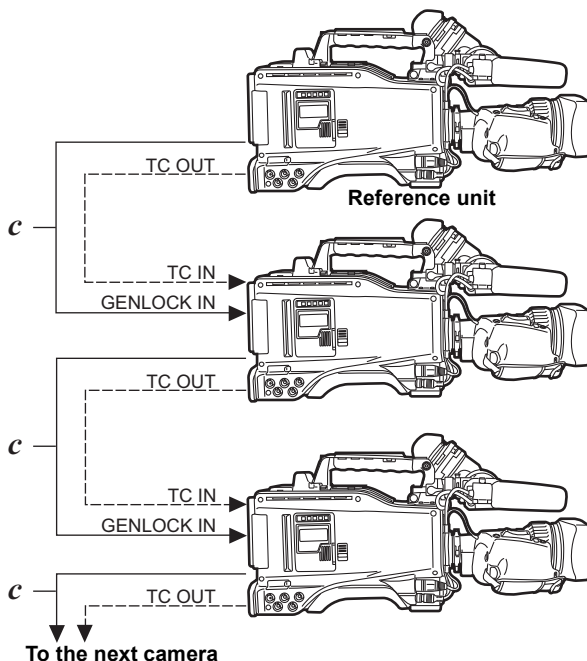


- a. Reference time code
- b. Reference video signal

#### ◆ Note

In place of the HD Y reference signal, composite video signals can be input as the reference video signal.

**Example 2:** When connecting a multiple number of units and using one of them as the reference unit



- c. MON OUT (VBS)

#### ◆ Note

The system can be configured with multiple units by opening the <GENLOCK> screen from the SYSTEM SETTING page and setting the GL PHASE item to the connector using menu operations.

The phase of the time code can correspond to the VBS output signals of the MON OUT connector. However, the same value should commonly be set to the GL PHASE for all cameras. If different values coexist in the system, the shooting timing may not correspond to each other.

Note that when the unit is in the 1080/23.98PsF or 1080/24PsF modes, it is not possible to lock the time code using the VBS connection with one unit as a reference unit in the manner shown in Example 2. When using these modes, connect the unit in the manner shown in Example 4 and Example 6.

Reference video signal	Setting of GL PHASE
MON OUT (VBS)	COMPOSIT

#### Setting of GL PHASE

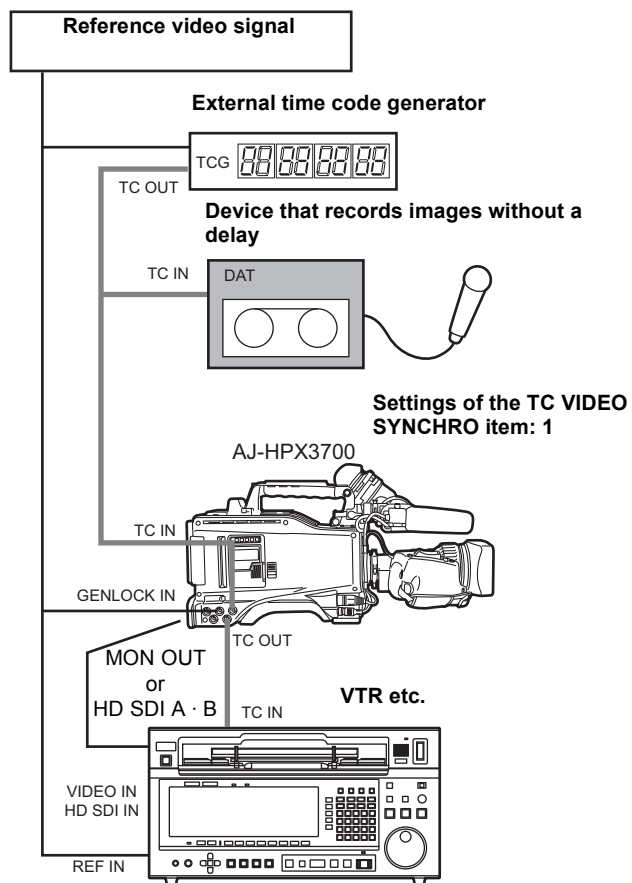
Item	Variable range	Remarks
GL PHASE	HD SDI COMPOSIT	<p>For selecting the output signals that lock phases to the signals that are input in the GENLOCK IN connector.</p> <p><b>HD SDI:</b> For locking the HD SDI signals to the GENLOCK input. For the down converter output signals, the start position of the video delays by about 90 lines.</p> <p><b>COMPOSIT:</b> For locking the down converter output signals to the GENLOCK input. For the HD SDI output signals, the start position of the video gains by about 90 lines. Note, however, that in 1080/23.98PsF mode and 1080/24PsF mode, the phase is locked to HD SDI even if "COMPOSIT" has been selected.</p>

As a result of processing to convert the video captured by the imaging devices from a progressive signal to an interlace signal, video signal delays will occur in the camera. Since time is required for making the 2:3 pull-down from the 24P frame, there is a video signal delay in the camera. When recording from a device that can record images without a delay and the unit is connected in parallel, it is necessary to synchronize the time code. To set this timing, open the <TC/UB> screen from the MAIN OPERATION page and set it in the TC VIDEO SYNCHRO item. Set by referring to the connection example.

### Setting of the TC VIDEO SYNCHRO item

Item	Variable range	Remarks
TC VIDEO SYNCHRO	0 1 2 3	For setting to correct the time code according to the delay of video signals. <b>0:</b> Do not correct. <b>1:</b> To delay the time code to be input according to the timing of the video images. <b>2:</b> To forward the time code to be output according to the timing of the video images. <b>3:</b> To delay the time code to be input and forward the time code to be output, respectively, according to the timing of the video images.

**Example 3:** When the unit and an external device are locked to the external time code generator, which is connected externally, and when simultaneous recording is made by using the TC OUT output signals.

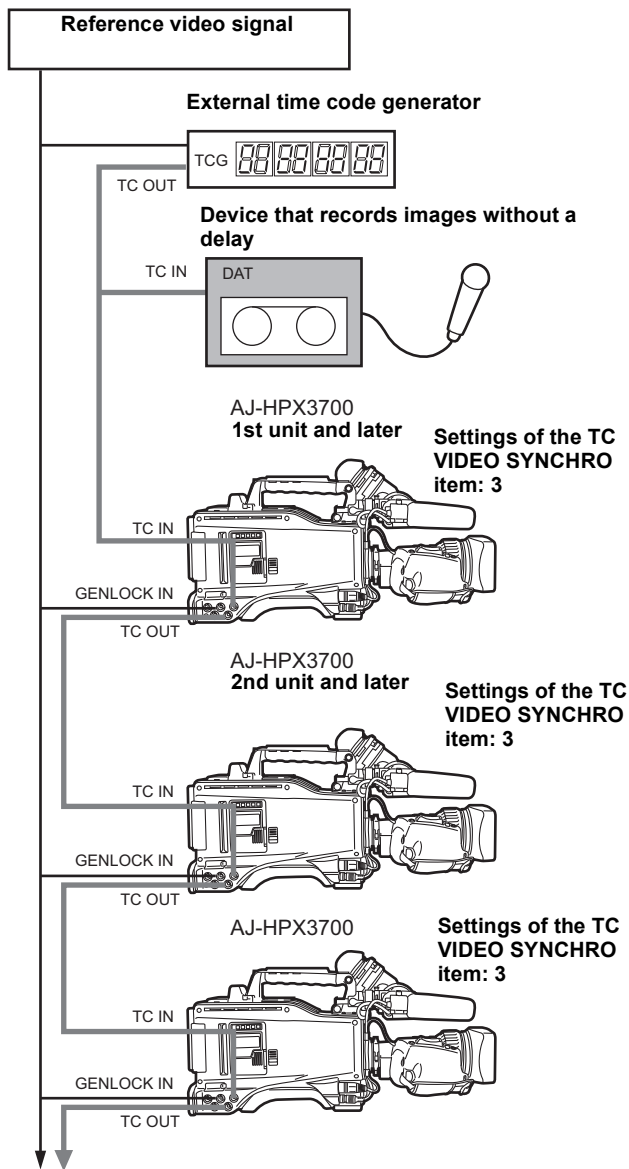


### Note

In the 1080/23.98PsF or 1080/24PsF mode, set the 23.98PsF or 24PsF HD signal as the reference signal and input a 24 frame time code to the TC IN input. If the VTR is capable of recording the HD SDI time code, it is possible to receive the time code output from the HD SDI A · B output, and synchronously record video with the time code. In this case, it is not necessary to supply a time code output signal to the VTR.

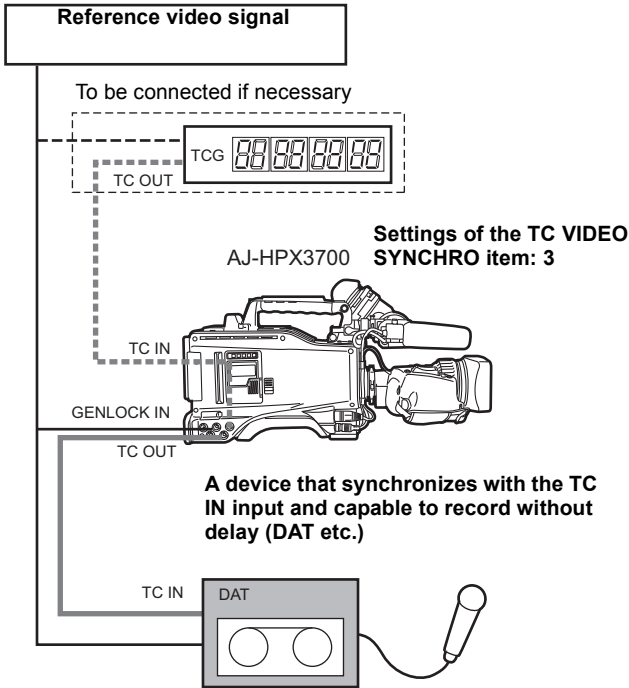
### Example 4:

When the unit and an external device are locked to the external time code generator and when several units of the camera are connected in a cascade configuration.



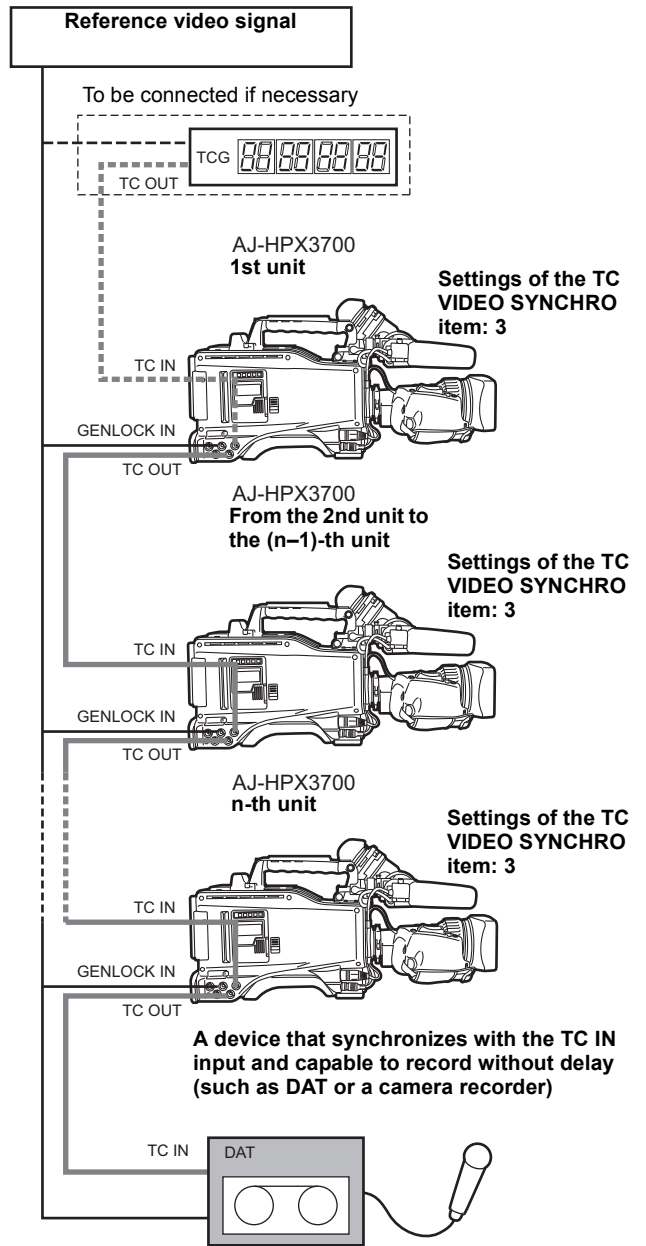
**Example 5:**

When an external device is locked to the time code generator of the unit.



**Example 6:**

When an external device is locked to the time code generator of unit, which is connected in a cascade configuration.



## To externally lock the time code

Follow the steps below.

- 1 Turn on the POWER switch.
- 2 Position the TCG switch at [F-RUN].
- 3 Position the DISPLAY switch at [TC].
- 4 Set the menu option GENLOCK to "EXT".  
This option can be found in the <GENLOCK> screen on the SYSTEM SETTING page.
- 5 Supply a phase-relationship reference time code (that conforms to the time code requirements) and reference video signals to the TC IN and GENLOCK IN connectors, respectively.

Now the built-in time code generator is locked with the reference time code.

From about 10 seconds after locking the time code generator stays locked even if the supply of external reference time code is discontinued.

### ◆ Notes

- When the time code generator is externally locked, the time code instantly becomes locked with the external time code, and the counter displays the external time code value. Do not begin recording in the few seconds it takes for the synch generator to stabilize.
- Be sure to enter the non-drop-frame time code to externally lock the time code in the 24P, 24PA or 24PN (Native) mode. Externally locking the drop-frame time code is not permitted.  
Video quality may be degraded momentarily while externally locking to adjust the 5-frame cycle. This is not abnormal.
- While recording data in the 24P, 24PA, or Native modes, it is impossible to lock the time code externally. Lock it before recording.  
Note also that if the unit is used with PRE REC MODE set to "ON" in any of the 24P, 24PA or Native modes, changing the time code from Rec run to Free run or slave locking the time code before recording may result in a flickering video or a stopped code being recorded.
- In the 1080/23.98PsF mode, the 23.94 Hz non-drop frame time code should be supplied. In the 1080/24PsF mode, the 24 Hz non-drop frame time code should be supplied.

## Setting the user bits when the time code is externally locked

When the TCG switch is positioned to [F-RUN], only the time code is locked to an external time code. To lock the user bits to an externally input value, the UB MODE and VITC UB MODE menu options must be set to "EXT" and "USER/EXT", respectively.

The menu option UB MODE and VITC UB MODE can be found in the <TC/UB> screen on the MAIN OPERATION page.

## To unlock the externally locked time code

Discontinue external time code supply, then position the TCG switch at [R-RUN].

## Cautions in switching the power source from battery to external power supply

Connect the DC IN socket with the external power supply before removing the battery pack, in order to keep the time code generator energized. If the battery pack is removed first, there is no guarantee that the time code will stay externally locked.

## External synchronization of the camera when the time code is externally locked

When the time code is externally locked, the reference video signals input through the GENLOCK IN connector gen-lock the camera.

### ◆ Notes

- To externally lock the unit, as the master device, with more than one unit, the mode must be the same as that of the camera. Note that in a system using both interlaced and progressive scanning, there may be breaks in the video and time code.
- When using the MON OUT connector to output reference signals, position the OUTPUT SEL switch on the side panel at [CAM].

## Superimpose of time codes

To display the time code in the viewfinder or the LCD monitor when recording or during playback, set TC in <VF INDICATOR3> to "TCG", "TCR", or "TCG/TCR".

To include the time code indication in the MON OUT or HD SDI A · B outputs, set the MON OUT CHARACTER switch to [ON], and set HD SDI A · B CHAR to "A", "B" or "BOTH" from the <OUTPUT SEL> screen using the menu.

To display the time code while the color bar is displayed, set TC ON COLOR BAR in <VF INDICATOR3> to "ON".



## Providing an ID to the Camera

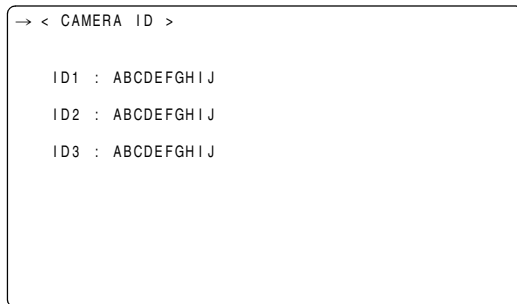
The camera ID is specified through the <CAMERA ID> screen.

The ID can include up to 10 alphanumeric characters, symbols, and/or spaces.

### ◆ Note

When the settings menu is displayed, outputting color bar signals does not indicate the camera ID.

- 1 Go to the <CAMERA ID> screen from the CAM OPERATION page.



- 2 Turn the jog dial button to move the arrow (cursor) to options ID1: - ID3:.
- 3 Press the jog dial button. The arrow (cursor) moves to the ID entry area, allowing you to enter an ID.
- 4 Turn the jog dial button until a desired character appears. The characters that appear are switched in the following order:  
Space: □  
↓  
Alphabetical characters: A to Z  
↓  
Numerals: 0 to 9  
↓  
Symbols: ' , > , < , / , -
- 5 Press the jog dial button to accept a desired character.
- 6 Turn the jog dial button to move the arrow (cursor) to the next digit (clockwise), and repeat steps 4 - 5 to set characters.  
To change an input character, turn the jog dial button to move the arrow (cursor) to the appropriate character and carry out steps 4 and 5.
- 7 When all the characters are set, turn the jog dial button to move the arrow (cursor) to : .
- 8 Pressing the jog dial button brings the arrow (cursor) back to the options ID1: - ID3:.

- 9 To exit the menu, press the MENU button.

### ◆ Notes

- When the menu option CAMERA ID is set to "BAR", the camera ID is recorded together with color bar signals. This menu option is accessible from the <VF INDICATOR1> screen on the VF page.
- The ID POSITION menu option can be used to select a position where the camera ID is superimposed on the color bar. The ID POSITION option can be accessed through the <VF INDICATOR1> screen on the VF page.
- When the TIME/DATE menu option is set to "ON", the camera ID along with the date and time information are superimposed on the color bar. The TIME/DATE option can be accessed through the <VF INDICATOR1> screen on the VF page.

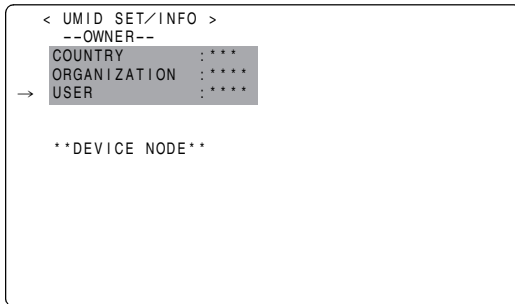
## Setting UMID Information

The unit supports UMID metadata. You need to specify as UMID information the country where you live (using up to 3 characters), organization or company (up to 4 characters) and user name (up to 4 characters). For the country name, you must use abbreviations prescribed in the ISO3166 Country Code\*.

Here are some examples of the correct method for specifying a user name:

\* **Examples:**

<b>China</b>	<b>CHN</b>
<b>U.S.A.</b>	<b>USA</b>
<b>Canada</b>	<b>CAN</b>
<b>Japan</b>	<b>JPN</b>



- 1 Go to the <UMID SET/INFO> screen from the MAIN OPERATION page.
  - 2 Turn the jog dial button to move the arrow (cursor) to the option USER.
  - 3 Press the jog dial button. The arrow (cursor) moves to the user entry area, allowing you to enter a user name.
  - 4 Turn the jog dial button until a desired character appears. The characters appear in the following order:

Space:	□
↓	
Alphabetical characters:	A to Z
↓	
Numerals:	0 to 9
↓	
Symbols:	' , > , < , / , -
- 
- ◆ **Note**  
The COUNTRY entry can only include alphabetical characters and spaces.
- 5 Press the jog dial button to accept a desired character.
  - 6 Turn the jog dial button to move the arrow (cursor) to the next digit (clockwise), and repeat steps 4 to 5 to set characters.  
To change an input character, go back to step 3.
  - 7 When the last character is set, press the jog dial button to bring the arrow (cursor) back to the option USER.
  - 8 To exit the menu, press the MENU button.

## CTL Count Setting and Display

By setting the DISPLAY switch to [CTL], CTL count is displayed on the time count indication of the LCD display window.

The CTL count is displayed in  $\pm 12$  hours with non-drop-frame.

The playback order of clips recorded on a P2 card is not linear as for VTRs. It is organized according to thumbnail operations or exchanging P2 cards, and the priority of recorded clips will be altered. Therefore, different CTL counts are displayed for recording mode and playback mode, respectively.

### CTL count for recording mode (recording CTL)

Recording CTL count is displayed during recording mode (REC, REC/PAUSE, STOP and REC REVIEW), and the count continues from the end point of the previous recording. Recording CTL count is retained even if the power is turned off. When the power is next turned on, the count continues from the previous value.

#### ◆ Notes

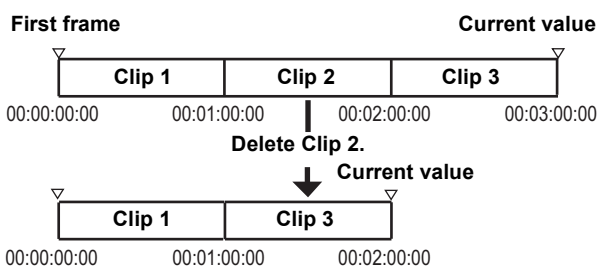
- If the RESET button is pressed while the recording CTL count is being displayed, only the recording CTL count is reset. Note that reset is disabled during the REC REVIEW operation.
- 24 frames are counted in the 24PN (Native) mode.

### CTL count for the playback mode (playback CTL)

During playback mode (PLAY, FF, REW, PLAY/PAUSE), playback CTL count is displayed.

Whenever the playback order of clips is altered (clips are sorted by shooting dates), previous playback CTL count is disabled. The first frame of the first clip is used as a reference value for recalculation, and the new playback CTL count is displayed.

#### Example:



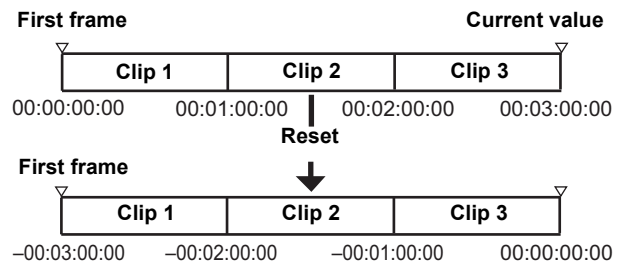
The playback order of clips is altered when either of the following occurs:

- Clips are deleted, copied or restored, or the P2 card is formatted.
- The thumbnail display is switched (for more information, see [Switching the Thumbnail Display] (page 130)).
- A P2 card is inserted or removed.

The reference value (value of the first frame of the first clip) is changed when either of the following occurs:

- The power is turned on, the first frame becomes 0.
- When the playback CTL count is reset, the current playback position is set as 0, and the previous reference value becomes a negative value.

#### Example:



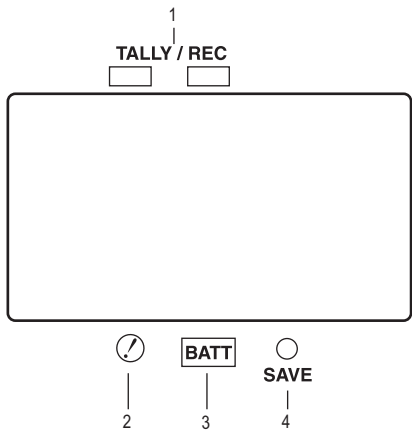
#### ◆ Notes

- If the RESET button is pressed while the playback CTL count is being displayed, only the playback CTL count is reset.
- For playback in 24PN (Native) mode, 30 frames are counted in accordance with the pull-down images. Note, however, that in the 1080/23.98PsF and 1080/24PsF modes, 24 frames are counted.

# Viewfinder Screen Status Displays

In addition to video images, the viewfinder displays lamps and text that indicate the settings and operating status of the unit, together with messages, a center marker, a safety zone marker and the camera ID.

## Lamps in the Viewfinder Screen



The above viewfinder is the AJ-HVF21G (for further information on your optional viewfinder model, see the relevant instruction manual).

### 1. TALLY/REC (recording) Lamp

This lamp stays illuminated in red during recording, and starts blinking if any abnormal action occurs. For more information, see [Warning System] (page 160).

### 2. Abnormal Operating Status Warning Lamp

This lamp comes on when the unit is in any of the abnormal operating statuses specified through the <!LED> menu screen. For statuses that activate the lamp, see the options in the [!LED] (page 189).

### 3. BATT (battery) Lamp

This lamp starts blinking a few minutes before the battery charge starts to run out, and stays illuminated after the battery is completely flat. The battery should be replaced before it is nearly flat, so that operation will not be interrupted. For more information, see [Warning System] (page 160).

### 4. SAVE Lamp

**In the normal setting:**

The lamp stays on when the SAVE switch is positioned at [ON] and the output of video and audio is power-saved.

**When the menu option SAVE LED is set to "P2CARD":**

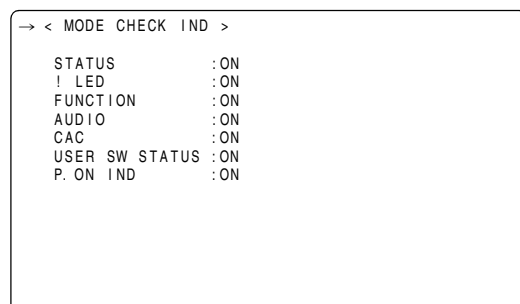
The lamp starts blinking when the P2 card remaining free space is getting low. The menu option SAVE LED can be found in the <VF INDICATOR3> screen on the VF page.

## Mode Check Screen Displays (MODE CHECK button function)

The viewfinder can display a screen that allows you to check the settings and status of the unit. Each press of the MODE CHECK button switches the screen as follows:

STATUS screen → !LED screen → FUNCTION screen → AUDIO screen → CAC screen → USER SW STATUS screen → No indication

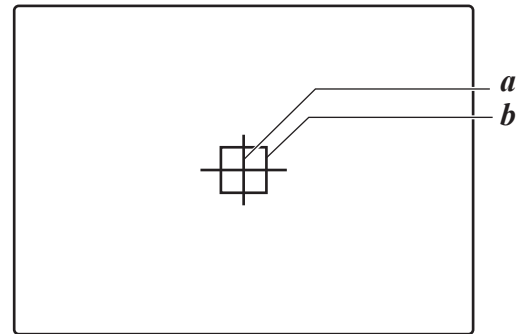
Each screen is displayed for about 5 seconds. A press of the MODE CHECK button switches the current screen. Whether or not to display each screen is specified through the <MODE CHECK IND> screen, which is accessible from the VF page.



## Y GET Area Display

Y GET detection area is displayed on the viewfinder screen, LCD monitor, and monitor output when the Y GET function is enabled after assigning the Y GET function to the USER button.

However, Y GET detection area is not displayed in the monitor output unless the center marker is displayed.

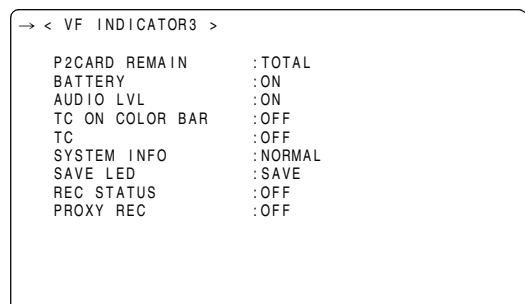
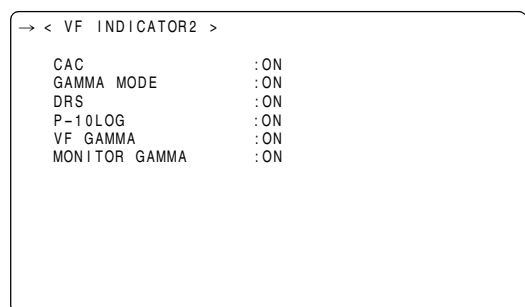
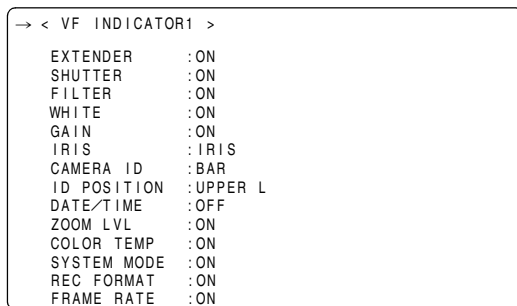


a. Center marker  
b. Y GET detection area

## Selecting Viewfinder Display Information

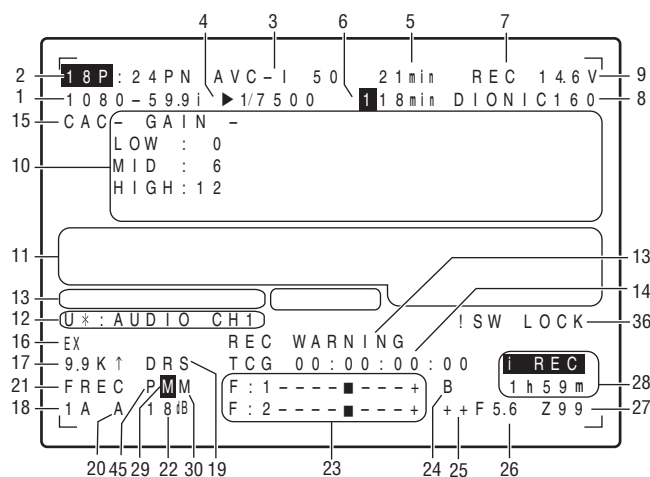
To select the information items you want to have displayed in the viewfinder screen, go to the <VF INDICATOR1>, <VF INDICATOR2> and <VF INDICATOR3> screens from the VF page, and turn on or off the appropriate options, or specify desired values.

For directions on setting the options, see [Setting Menu Options] (page 168).

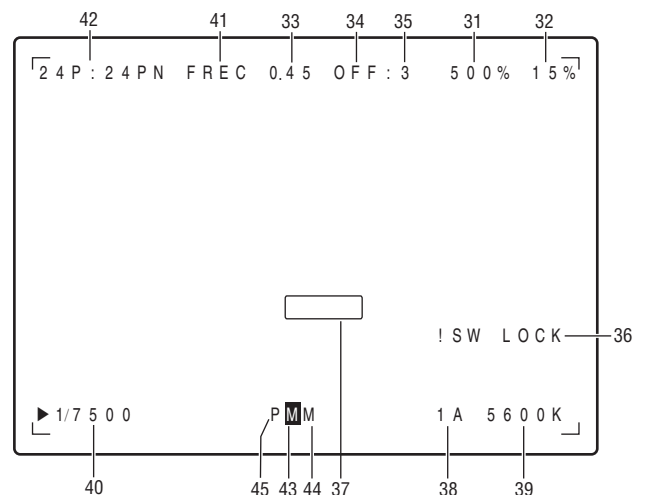


## Viewfinder Status Indication Layout

The indications are arranged as illustrated below.



STATUS MODE: NORMAL



STATUS MODE: FILM-REC

For more information, see the following pages.

Information Item	Indication	Status
1. System mode	1080-59.9i 1080-23.9PsF 1080-24.0PsF 1080-50i	This indicates the mode that the unit operates in. 1080-59.94 interlace mode 1080-23.98 segment frame mode 1080-24 segment frame mode 1080-50 interlace mode
2/42. Frame number for shooting and recording	**P: **i At native recording **P: **PN	The shooting frame number is displayed next to the recording frame number (including native recording) and the recording type (progressive/interlacing). Examples: In the case of 24PN recording and 12 frame shooting, "12P:24PN" is displayed. In the case of 12P Over 59.94i, "12P:60i" is displayed. When the VFR function is "ON", the shooting frame number is displayed with black and white reversed. When operating in SYNCHRO SCAN mode, the shooting frame number blinks.
3. REC FORMAT	DVCPROHD AVC-I100 AVC-I50	This indicates the recording mode. ◆ <b>Note</b> "DVCPROHD" is also displayed in the native recording. DVCPRO HD recording (including native recording) AVC-Intra100 recording AVC-Intra50 recording
4/40. Shutter speed/ mode	▶1/**.* , ▶***.*d ▶▶1/**.* 1/50 (1/60) - 1/2000, HALF, ***.*d	This indicates that the shutter speed is set to SYNCHRO SCAN. This indicates that the shutter speed is set to SYNCHRO SCAN2. This indicates that a fixed shutter speed has been set.
5. P2 card remaining free space	***min  END WP LOOP  INFO P2 */*	The indication "***min" stays illuminated under normal conditions or blinks when the remaining level is near zero. When the card space is used up, "END" blinks. WP is illuminated when the P2 card is write-protected. LOOP is illuminated when the LOOP REC mode is set. When loop recording cannot be performed, for example because the P2 card has no free space, the indication blinks. P2 card being recognized. Total free space/capacities of the P2 cards (when MODE CHECK is being performed). ◆ <b>Note</b> When the menu option P2CARD REMAIN is set to "ONE-CARD", the number of the P2 card slot that contains the target card is indicated, together with the remaining space. For more information, see [P2 Card Remaining Free Space/capacity Indication] (page 84). With lower frame rates under VFR operation during native recording, the display period may lengthen for the indication that little space remains on the P2 card.
6. P2 card remaining free space (when MODE CHECK is being performed)	<b>1</b> ***min	The number of the P2 card slot that contains the target card and the remaining free space are indicated (when MODE CHECK is being performed). In LOOP REC mode, an indication of estimated recording time appears. For more information, see [Loop Recording] (page 43). This indication also appears when the target P2 card has been switched with a user button. ◆ <b>Note</b> Under VFR operation in native recording, the amount of free space increases as the frame rate is lowered.
7. Unit REC indication	REC	This can be displayed during the recording using the unit alone. This is displayed when the menu option REC STATUS of the <VF INDICATOR3> screen is set to "ON".

Information Item	Indication	Status
8. Battery type (when MODE CHECK is being performed)	PRO14 - AC ADPT	Battery type, selected through a menu option. "AC ADPT" indicates when an external DC power supply has been input.
9. Battery remaining level/voltage	**.*V ***%  EMP  MAX	Battery remaining level in tenths of a volt The battery level of batteries having a level indicating function is displayed as a percentage. Where the battery has a level indicating function, this indicates that the battery is empty. Where the battery has a level indicating function, this indicates that the battery is fully charged.
10. MODE CHECK Indication Area (STATUS: Master gain)	LOW/MID/HIGH -3 to 30	Value set for the master gain Example: LOW: 0
(Cause of !LED illumination: displayed full-screen) • Indications selected through the menu option !LED are marked with [!]. • Indications which may activate the !LED are marked with [!].	GAIN (0dB) SHUTTER WHITE PRE. EXTENDER B.GAMMA MATRIX COLOR COR. FILTER	Gain status Shutter status White balance status Extender status (EX2 or OFF) BLACK GAMMA status (ON or OFF) MATRIX status (A, B, or OFF) Color correction status (ON or OFF) Filter status
(FUNCTION: HD SDI A · B)	OUTPUT: MEM/CAM/OFF TYPE: 4:2:2/4:4:4  CHAR: A/B/BOTH	Position of OUTPUT SEL switch. Indicates current setting of SIGNAL FORMAT. SIGNAL FORMAT is selected in the <OUTPUT SEL> screen of the SYSTEM SETTING page. Indicates current setting of HD SDI A · B CHAR. HD SDI A · B CHAR is set from the <OUTPUT SEL> screen of the SYSTEM SETTING page.
(FUNCTION: MON OUT)	OUTPUT: MEM/CAM/OFF SELECT: VBS/HD SDI  CHAR: ON/OFF	Position of OUTPUT SEL switch. Indicates current setting of MONITOR OUT. MONITOR OUT is set from the <OUTPUT SEL> screen of the SYSTEM SETTING page. Indicates current setting of MON OUT CHARACTER switch.
(FUNCTION: P2CARD STATUS)	TOTAL  SLOT1/SLOT2/SLOT3/ SLOT4/SLOT5  OP-SLOT	Total remaining free space/capacities of the P2 cards loaded in P2 card slots 1 - 5. Status and remaining free space/capacity of each card. The numbers denote the P2 card slot numbers. The card status is indicated as: ACTIVE/ACCESSING/INFO READING/FULL/PROTECTED/ NOT SUPPORTED/FORMAT ERROR/NO CARD/PROXY For details of statuses, see [P2 card access LED and status of P2 cards] (page 32). Indicates optional slot status. The card status is indicated as: PROXY/NO CARD/NOT SUPPORTED
(AUDIO: Enabling or disabling the FRONT AUDIO LEVEL control)	CH1: ON/OFF  CH2: ON/OFF	If the FRONT AUDIO LEVEL control is in effect for channel 1, then "ON" is indicated. If not, "OFF" is indicated. If the FRONT AUDIO LEVEL control is in effect for channel 2, then "ON" is indicated. If not, "OFF" is indicated.
(AUDIO: Phantom power status for the microphone)	FRONT: ON/OFF REAR: ON/OFF	Phantom power status of the front microphone Phantom power status of the rear microphone For more information, see [MIC/AUDIO2] (page 199).
(AUDIO: Input signal and level for each channel)	FRONT/W.L./REAR CH1/2/3/4	Input signal and level for each channel

Information Item	Indication	Status
<b>11. Camera Warning and Report Area</b> (Related to AWB, ABB and switch settings)	AWB A ACTIVE AWB B ACTIVE AWB A OK *.*K AWB B OK *.*K AWB BREAK *.*K AWB NG COLOR TEMP LOW COLOR TEMP HIGH LEVEL OVER LOW LIGHT TIME OVER AWB PRESET *.*K  CHECK FILTER  ABB ACTIVE ABB OK ABB BREAK ABB NG B-SHD READY  B-SHD ACTIVE B-SHD OK B-SHD BREAK B-SHD NG	AWB being performed on Ch A. AWB being performed on Ch B. AWB successful on Ch A. AWB successful on Ch B. AWB action aborted by user. AWB action failed. The second line indicates the status. Color temperature too low. Color temperature too high. Brightness too high. Brightness too low. Action timed-out.  AWB cannot be performed because the AWB switch is position at [PRST] or the super gain is enabled. This is warning to recheck the position of the filter switch knob during AWB and when the power is turned on. ABB being performed. ABB action successful. ABB action aborted by user. ABB action failed. Black shading accepted (by holding down the ABB switch during ABB adjustment). Black shading being adjusted. Black shading adjustment successful. Black shading adjustment aborted by user. Black shading adjustment failed.
(Switch changeover indication)	WHITE: # *.*K AUTO KNEE: ON/OFF GAIN: *.*dB SS: 1/****, ***. *d, ▶***. *d SS: ▶ 1/****, ▶▶ 1/*** ND: */CC: *.*K EXTENDER: ON/OFF/*K IRIS: ** F *.* DRS: ON/OFF	The WHITE BAL switch has been switched. # is replaced with A, B or PRE. AUTO KNEE switch has been switched to [ON] or [OFF]. Gain has been switched with the GAIN selector switch or a user button. When the shutter speed has been switched, the shutter speed is indicated.  Shutter speed is in SYNCHRO SCAN mode. This appears when the filter setting has been selected. Lens extender has been turned on or off. Indicated when the iris override correction value is to be changed. The dynamic range stretcher has been switched.
(Low light warning)	LOW LIGHT	Brightness too low.
(Y GET value)	*.*.*%	With the Y GET ON setting, the output brightness level near the center marker is displayed as "%".
<b>12. User button functions</b> UM: USER MAIN button U1: USER 1 button U2: USER 2 button U3: MARKER SELECT button U4: TEXT MEMO button	INH I.OVR ON/OFF S.BLK -**/OFF B.GAMMA ON/OFF Y GET ON/OFF DRS ON/OFF ASSIST ON/OFF C.TEMP ON/OFF  VFR ON/OFF FRATE ON/OFF VF GAM ON/OFF AUDIO CH1 AUDIO CH2 REC SW RET SW PRE REC SLOT SEL USB HOST/DEVICE/OFF VF MARK A/B/OFF  TEXT MEMO	User buttons disabled. Iris override can be set (the iris override setting is on). Status of super black (on or off). When it is on, the set value is also indicated. Status of black gamma (shade correction for the black level): on or off Indicates whether the Y GET function is on or off. Indicates whether the dynamic range stretcher function is on or off. Indicates whether the focus assist function is on or off. Indicates the mode for changing the color temperature with the jog dial button is on or off. Indicates whether the VFR function is on or off. Indicates whether the frame rate set in USR SW F.RATE is being applied. Indicates whether the monitor gamma function is enabled for the viewfinder. Input signal to be recorded on audio channel 1 has been switched. Input signal to be recorded on audio channel 2 has been switched. User button acts as REC switch. User button acts as RET switch. Indicates that PRE RECORDING mode has been switched on or off. Switch that changes the target card is set. USB action status has been switched. Displayed when the marker displayed in the viewfinder and on the LCD screen has been changed. Indicates whether the TEXT MEMO function is on or off.



Information Item	Indication	Status
<b>13. System information and warnings</b>	SYSTEM ERROR-**	Something abnormal is happening to the internal computer communications or reference signal. No further recording or playback can be performed. ** is replaced with an error code. For more information, see [Error Codes] (page 163).
	TURN POWER OFF	P2 card has been removed while being accessed (recorded, played back, or formatted), and subsequent operation is disabled.
	CARD ERR *	An error has occurred while recording data to or playing data from a P2 card. In the actual indication the * is replaced by the slot number of the P2 card that triggered the error.
	REC WARNING	Something abnormal is happening to video and/or audio being recorded.
	BACKUP BATT EMPTY	Backup battery needs replacing.
	FAN STOP	The fan is locked and halted.
	WIRELESS-RF	RF signal from the wireless receiver is degraded.
	EOM	P2 card has no free space.
	BOS	Playback position is at the start of all the clips.
	EOS	Playback position is at the end of all the clips.
	CANNOT REC	Indicates that it is not possible to record to a P2 card directly after insertion or switching on the power. Detailed information is provided on the FUNCTION screen of MODE CHECK. See the relevant section of the 10. MODE CHECK indication area.
	CANNOT PLAY	Clip cannot be played back perhaps because no P2 card is loaded, or the P2 card contains no clips.
	COMM ERROR	Displayed when disconnection between microcomputers continues for a specified period or longer.
	TEXT MEMO	Text memo has been added.
	TEXT MEMO INVALID	Text memo has not been successfully added.
	MARK ON/OFF	Shot mark has been added or deleted. For information on shot marks, see [Shot Mark Function] (page 48).
	SHOT MARK INVALID	This is displayed when shot marks cannot be added.
	UPDATING	Clip information is being updated. Playback operation disabled.
	USB DEVICE	The unit is in USB DEVICE mode. When communication is disabled, the indication blinks.
	USB HOST	Indicates that the unit is set to the USB HOST mode. When the external hard disk is not successfully recognized, then the indication blinks.
	THUMBNAIL OPEN	Thumbnail is being manipulated.
	PROXY REC P2&SD	Displayed when proxy recording on either the P2 card or the SD memory card starts (when AJ-YAX800G is attached, the PROXY REC item on the <VF INDICATOR3> screen is turned on).
	PROXY REC P2	Displayed when proxy recording on the P2 card starts (when AJ-YAX800G is attached, the PROXY REC item on the <VF INDICATOR3> screen is turned on).
	NEAR END (SD)	When the remaining free space on the SD Memory card drops below 1 minute during proxy recording, the message is displayed (when AJ-YAX800G is attached).
EOM (SD)	Displayed when full capacity is reached during proxy recording on the SD memory card (when AJ-YAX800G is attached).	
PROXY CARD ERROR	Displayed when proxy recording stops because of failure on either the video encoder card or the stream. Check the video encoder card or avoid use of proxy recording. (When AJ-YAX800G is attached.)	
SD CARD WRITE ERR	Displayed when a failure occurs on the SD memory card during proxy recording, and only recording on the SD memory card stops (when AJ-YAX800G is attached).	
TC REGEN	The RET button was pressed to regenerate the time code as the time code for the last clip recorded on a P2 card.	
SLOT SEL	This blinks while the recording slots of P2 cards are switched after pressing the user button where the SLOT SEL function is assigned.	
SLOT SEL INVALID	This is displayed if the recording slots of P2 cards cannot be switched when the user button where the SLOT SEL function is assigned is pressed.	
DIR NG CARD SLOT1/2/3/4/5	This is displayed when a P2 card with an irregular directory structure is inserted or when beginning or ending a recording to an inserted card having such a directory structure.	
RUN DOWN CARD SLOT1/2/3/4/5	This is displayed when the recording starts or completes with a P2 card on which the maximum number of overwrites has been exceeded, or when data is recorded after inserting such a P2 card.	
AUDIO NOT RECORDING	This is displayed when audio is not being recorded on the P2 card even if the audio level meter is moving.	

Information Item	Indication	Status
14. Time code indication	TCG 12:59:59:20 TCR 12:59:59:20 (V)UBG AB CD EF 00 (V)UBR 12 34 56 78 CTL -1:59:59:20	TCG (time code generator value) TCR (time code reader value) UBG VUBG (User bits generator value) UBR VUBR (User bits reader value) Displays CTL count.
15. CAC	CAC	This is displayed when CAC is operating normally.
16. Extender	EX	Lens extender used.
17/39. Color temperature	*.*K	Color temperature assigned to [A], [B], and [PRST] of the WHITE BAL switch (this is a value stored at AWB performance or a value set through the menu option).
18/38. Filter position	1 - 4 A - D -	This indicates the position of the ND filter. This indicates the position of the CC filter. This indicates that the filter has not been set to a proper position.
19. Dynamic range stretcher mode	DRS	This is displayed when the function for compressing the video levels of sections with high brightness to stretch the dynamic range has been selected.
20. WHITE BAL switch position	A B P	WHITE BAL switch positioned at [A]. WHITE BAL switch positioned at [B]. WHITE BAL switch positioned at [PRST].
21/42. Gamma Indication	HD SD FLK1 FLK2 FLK3 FREC VREC	This indicates the gamma used in the unit.
22. Gain value	*.*dB	Current gain value.
23. Audio input channel and level meter	---- ■ ---- + F W R	Selected channel together with its audio level. AUDIO IN switch is positioned at [FRONT]. AUDIO IN switch is positioned at [W.L.] (wireless) AUDIO IN switch is positioned at [REAR].
24. Super black ON	B	Super black ON.
25. Iris override indication	+ + + (No indication) - --	Correction phase of the iris override (when active) + +: On the open side by 1 + : On the open side by 0.5 - -: On the closed side by 1 - : On the closed side by 0.5 No indication: Standard status

Information Item	Indication	Status
26. Iris, F value	NC OPEN F1.7 - F16 CLOSE	Lens cable is not connected. Lens iris is at maximum. Lens iris value Lens iris closed. ◆ <b>Note</b> These indications are provided when the lens is capable of indicating the iris value. When the iris is being overridden, they blink.
27. Zoom indication	Z00 - Z99	Zoom degree is indicated. This indication is not provided for a lens that does not return the zoom position, even if the indication is set to on.
28. INTERVAL REC/ PRE RECORDING indication/SD memory card remaining free space	<b>I</b> <b>iREC</b> (blink) <b>iREC</b> (blink) **h**m/**s P-REC (blink)  <b>SD</b> **h **m  END	Displayed before and after operation during INTERVAL REC mode. Displayed during INTERVAL REC operation. Displays the pause time before the next recording during INTERVAL REC.  Indicated while pre-recorded video and audio are being recorded on the P2 card. If the user button is set to perform the PRE RECORDING function, either "P-REC OFF" or the specified duration "1s - 8s" is displayed when the PRE RECORDING mode is switched by pressing the user button.  If a video encoder card (AJ-YAX800G, optional) is attached, the remaining free space on the SD Memory card will be displayed when the MODE CHECK button is pressed during proxy recording.  "END" is displayed when there is no remaining free space.
29/43. VF-GAMMA	<b>M</b>	This is only enabled when "FILM-REC" has been selected in the GAMMA MODE SEL menu option. Video shot in the FILM-REC gamma mode is converted to high-contrast video and supplied to the viewfinder. GAMMA MODE SEL can be selected from the screen <GAMMA> in the PAINT page.
30/44. MON-GAMMA	M	This is only enabled when "FILM-REC" has been selected in the GAMMA MODE SEL menu option. Video shot in the FILM-REC gamma mode is converted to high-contrast video and supplied to the MON OUT output. GAMMA MODE SEL can be selected from the screen <GAMMA> in the PAINT page.
31. F-REC DYNAMIC LVL indication	200% 300% 400% 500% 600%	This indicates the dynamic range at FILM-REC. At other times, it indicates knee-slope.
32. F-REC BLACK STR LVL indication	00% - 30%	This indicates the level of black stretch at FILM-REC. At other times, it indicates knee-point.
33. MASTER GAMMA indication	0.30 - 0.75	This indicates the master gamma level.
34. BLACK GAMMA setting	-8 - OFF - +8	This indicates the gamma curve setting for dark locations on the screen.

Information Item	Indication	Status
35. B.GAMMA RANGE	1 2 3	This indicates the level (upper limit) of the compression/expansion.
36. Switch lock setting	!SW LOCK	This is displayed when any of the side switches (GAIN, OUTPUT and AWB switches) are operated with SIDE SW LOCK in a locked state. Note that it is not displayed during when AJ-RC10G is connected and in operation.
37. Exposure Indication	-4 -3■■ -3■ -3 -2■■ -2■ -2 -1■■ -1■ -1 ±0 +0■ +0■■ +1 +1■ +1■■ +2 +2■ +2■■ +3 +3■ +3■■ +4 +4■ +4■■ +5	When GAMMA MODE SEL has been set to "FILM-REC" and STATUS MODE to "FILM REC", executing the Y GET operation measures brightness in proximity to the center marker. The measured value is displayed as an exposure level. A measured output signal of 30% is displayed as ±0 (normal). This value is then adjusted by +1 STOP for every doubling of the amount of incident light and by -1 STOP for every halving of the amount incident light. Each ■ represents 1/3 STOP. GAMMA MODE SEL is set from the <GAMMA> screen of the PAINT page. STATUS MODE is set from the <VF DISPLAY> screen of the VF page.
45. P-10LOG	P	This is displayed when the HD SDI A · B output signal of the unit is P-10LOG.

**P2 Card Remaining Free Space/capacity Indication**

Status of unit	Recording status	Menu option P2CARD REMAIN*1	5. P2 card remaining free space indication*2	6. P2 card remaining free space indication (during MODE CHECK)*2
Under normal conditions	Other than LOOP REC mode	TOTAL	The total remaining free space of all P2 cards loaded in the P2 card slots is indicated in minutes. Example: 30min	Not provided
		ONE-CARD	The number of the P2 card slot holding the target P2 card, together with that card's remaining free space indicated in minutes. Example: <b>1</b> 8min	Not provided
		OFF	Not provided	Not provided
	LOOP REC mode	TOTAL/ONE-CARD	Indicated as "LOOP"	Not provided
		OFF	Not provided	Not provided
During MODE CHECK	Other than LOOP REC mode	TOTAL/ONE-CARD/ OFF	The total remaining free space and capacities of all P2 cards loaded in the P2 card slots are indicated in minutes. Example: 20/40	The number of the P2 card slot holding the target P2 card, together with that card's remaining free space, indicated in minutes. Example: <b>1</b> 8min
	LOOP REC mode		Indicated as "LOOP"	The estimated recording time is indicated in minutes. Example: 7min

\*1 The menu option P2CARD REMAIN can be found in the <VF INDICATOR3> screen on the VF page.

\*2 If the remaining free space or memory capacity is 9999 min or more, [9999min] is displayed.

## Indications Available in the Viewfinder Screen

	Selectable between on and off through menu options	Provided when the appropriate status is encountered.	Provided during MODE CHECK*	Can be switched off.	Provided during playback
1. System mode	○	–	●	○	–
2. Frame number for shooting and recording	○	–	●	○	–
3. REC FORMAT	○	–	●	○	–
4. Shutter speed/mode	○	○	●	○	–
5. P2 card remaining free space	○	–	●	○	–
6. P2 card remaining free space (when MODE CHECK is being performed)	–	–	●	○	–
7. Unit REC indication	○	○	–	○	–
8. Battery type (when MODE CHECK is being performed)	–	–	●	○	–
9. Battery remaining level/voltage	○	–	●	○	–
10. MODE CHECK Indication Area	–	–	○	○	–
11. Camera Warning and Report Area	–	○	○	○	–
12. User button functions	–	○	○	○	–
13. System information and warnings	○	○	●	○	○
14. Time code indication	○	–	●	○	○
15. CAC	○	○	●	○	–
16. Extender	○	○	●	○	–
17. Color temperature	○	○	●	○	–
18. Filter position	○	–	●	○	–
19. Dynamic range stretcher mode	○	–	●	○	–
20. WHITE BAL switch position	○	–	●	○	–
21. Gamma Indication	○	–	●	○	–
22. Gain value	○	–	●	○	–
23. Audio input channel and level meter	○	–	All 4ch input information	○	–
24. Super black ON	○	○	●	○	–
25. Iris override indication	○	○	●	○	–
26. Iris, F value	○	–	●	○	–
27. Zoom indication	○	–	●	○	–
28. INTERVAL REC/PRE RECORDING indication/SD memory card remaining free space	–	○	●	–	–
29. VF-GAMMA	○	○	●	○	–
30. MON-GAMMA	○	○	●	○	–
31. F-REC DYNAMIC LVL indication	–	○	–	–	–
32. F-REC BLACK STR LVL indication	–	○	–	–	–
33. MASTER GAMMA indication	–	○	–	–	–
34. BLACK GAMMA setting	–	○	–	–	–
35. B.GAMMA RANGE	–	○	–	–	–
36. Switch lock setting	–	○	–	–	–
37. Exposure Indication	–	○	–	–	–
38. Filter position	–	○	–	–	–
39. Color temperature	–	○	–	–	–
40. Shutter speed/mode	–	○	–	–	–
41. Gamma Indication	–	○	–	–	–
42. Frame number for shooting and recording	–	○	–	–	–
43. VF-GAMMA	–	○	–	–	–
44. MON-GAMMA	–	○	–	–	–
45. P-10LOG	○	○	–	–	–

\* ○: Not provided when the menu option STATUS is set to "OFF", which can be found in the <MODE CHECK IND> screen on the VF page.

●: Provided regardless of the menu option setting.

## Display Modes and Setting Changes/adjustment Result Messages

The messages that appear on the viewfinder screen to indicate changes to settings and adjustment results may be limited, or set not to appear, through the menu option DISP MODE. This menu option can be found in the <VF DISPLAY> screen on the VF page.

For directions on navigating the menu, see [Setting Menu Options] (page 168).

```

-> < VF DISPLAY >

STATUS MODE      :NORMAL
DISP CONDITION   :NORMAL
DISP MODE        :3
VF OUT           :Y
VF DTL           :0.5
VF DTL CORING    :0.0
VF H. DTL. FREQ. :4
ZEBRA1 DETECT    :70%
ZEBRA2 DETECT    :85%
ZEBRA2           :SPOT
LOW LIGHT LVL    :35%
RC MENU DISP.    :ON
MARKER/CHAR. LVL :50%
SYNCHRO SCAN DISP :deg
    
```

### Setting change/adjustment messages and DISP MODE settings

Message appears when:	Message	DISP MODE settings		
		1	2	3
CC filter/ND filter changed.	ND: n (n=1, 2, 3, 4), CC: m (m=A, B, C, D)	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
Gain changed.	GAIN: n dB (n=-3, 0, 3, 6, 9, 12, 15, 18, 21, 24, 27, 30)	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
WHITE BAL switch re-positioned.	WHITE: n (n=A, B, PRE)	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
OUTPUT/AUTO KNEE switch positioned at [AUTO KNEE] or [OFF].	AUTO KNEE: ON (or OFF)	<input type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>
Shutter speed/mode changed.	1/180.0 deg (or 1/172.8 deg, 1/144.0 deg, 1/120.0 deg, 1/90.0 deg, 1/45.0 deg, 1/****, ►1/****, ►***.* deg, ►►1/****)	<input type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>
White balance adjusted (AWB performed).	Example: AWB A OK 3.2 K	<input type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>
Black balance adjusted (ABB performed).	Example: ABB OK	<input type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>
Extender selected.	Example: EXTENDER ON	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
User button selected.	Example: UM: SLOT SEL	<input type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>
Iris being overridden.	Example: ++ F 5.6	<input type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>

●: Message appears.

○: Message does not appear.

## Setting the Marker Displays

The center, safety zone, safety zone area and frame markers may be set to on or off, along with specifications of the marker types. To set and select markers, go to the <VF MARKER> screen from the VF page and select the appropriate options.

For directions on navigating the menu, see [Setting Menu Options] (page 168).

```

-> < VF MARKER >                                MRK: A

TABLE          :A
CENTER MARK    :1
SAFETY MARK    :2
SAFETY AREA    :90%
FRAME MARK     :OFF
FRAME SIG      :4:3
FRAME LVL      :15
    
```

### ◆ Note

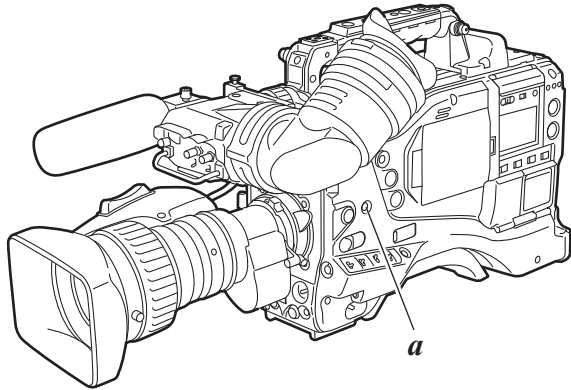
The indication "MRK: A" at the upper right of the screen shows the current indication status. To view TABLE B, press the MARKER SELECT button. This changes the indication to "MRK: B", allowing you to view the settings.

## Marker Check Screen Displays (MARKER SELECT button function)

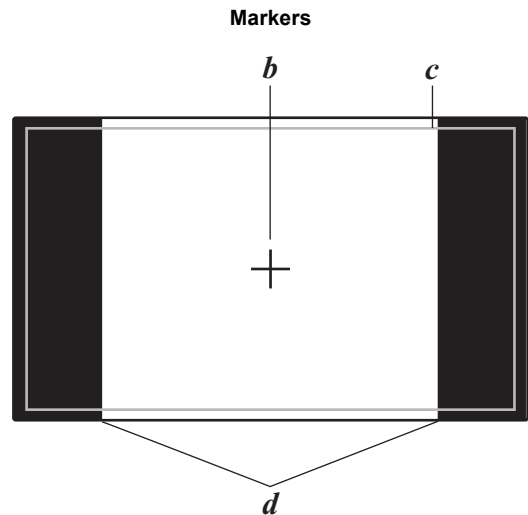
The viewfinder can display a screen that allows you to view the marker settings of the unit. Pressing the MARKER SELECT button on the unit switches the marker indication as follows.

MRK: A → MRK: B → MRK: OFF

If the menu option FRAME SIG is set to “14:9” as the information of Marker A and “4:3” as the information of Marker B, then the 14:9 and 4:3 view angles can easily be checked with the button, as required.



*a.* MARKER SELECT button



- b.* Center marker
- c.* Safety zone
- d.* The view angle specified through the menu option FRAME SIG is displayed.

## Checking Return Video Signal in the Viewfinder

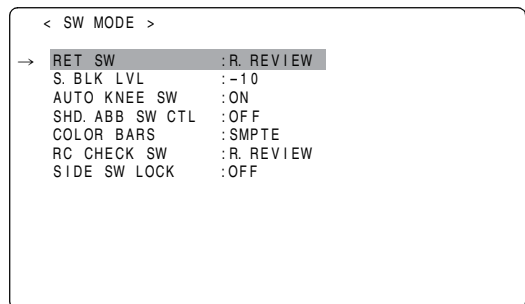
The viewfinder displays the return video signal input to the GENLOCK IN connector while the RET button at the lens is held down.

Note, however, that the return video signal cannot be viewed unless the signal format set using SYSTEM MODE matches the input signal to the GENLOCK IN connector.

To enable this capability, select “CAM RET” for the menu option RET SW. This option can be found in the <SW MODE> screen on the CAM OPERATION page.

### ◆ Note

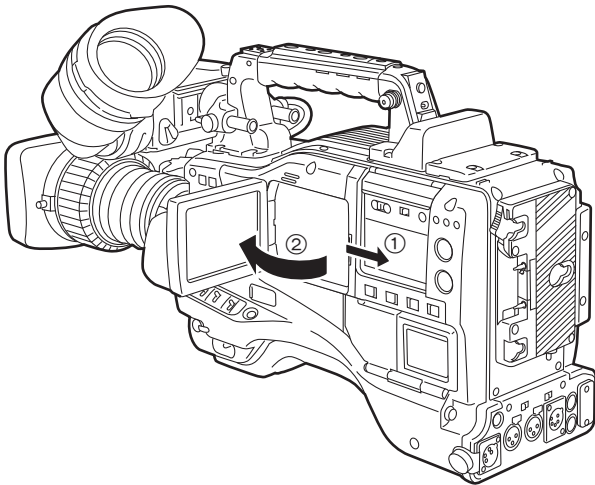
1080/23.98P, 1080/24P and SD format signals cannot be viewed.



# Adjusting and setting the LCD monitor

## Using the LCD Monitor

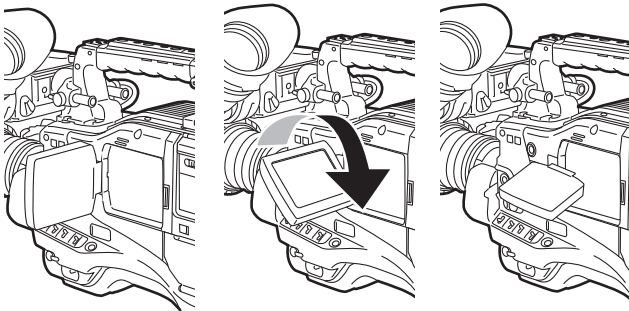
- 1 Turn on the POWER switch of the unit.
- 2 Slide the OPEN button in the arrow ① direction to open the LCD monitor in the arrow ② direction.



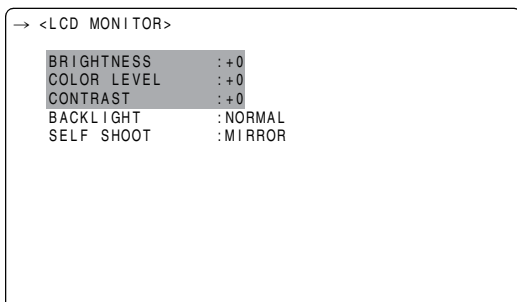
- 3 Adjust the angle of the LCD monitor for most convenient viewing. The monitor can turn up to 180 degrees towards the lens and up to 90 degrees towards you.

### ◆Note

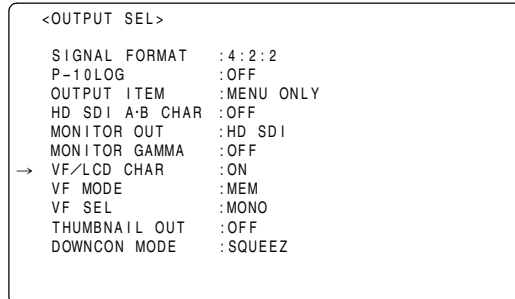
To prevent unit failure, do not allow undue force to be applied to the monitor (when it is open).



- 4 The options BRIGHTNESS, COLOR LEVEL, and CONTRAST show respectively the brightness, color level and contrast of the screen. These options can be found in the <LCD MONITOR> screen on the SYSTEM SETTING page.



- 5 Through the menu option VF/LCD CHAR, specify whether or not the LCD should display the same characters as the viewfinder. This menu option can be found in the <OUTPUT SEL> screen on the SYSTEM SETTING page.



### ◆Notes

- When closing the LCD monitor make sure that it is shut tight.
- In an environment with sudden temperature changes, condensation may form on the liquid crystal surface of the monitor. If this happens, wipe off the moisture with a soft, dry cloth.
- When the unit is very cold, the video image in the LCD monitor will appear slightly darker immediately after the power is turned on. Once the interior of the unit warms up, the LCD monitor delivers normal brightness.

## Self-portrait Shooting

When shooting with the LCD display angled 180 degrees towards the lens, you can set the menu option SELF SHOOT to "MIRROR", to horizontally flip the video image on the LCD display, and allow you to view a mirror image while shooting.

Note that only the video image on the LCD monitor is horizontally flipped, not the actual video being recorded. The menu option SELF SHOOT can be found in the <LCD MONITOR> screen on the SYSTEM SETTING page.

### ◆Notes

- When the LCD monitor is angled 180 degrees towards the lens with the menu option SELF SHOOT to "MIRROR", the LCD monitor does not provide the same status indication as the viewfinder, regardless of the setting for the menu option VF/LCD CHAR.
- Return signals from the GENLOCK IN connector cannot be output to the LCD monitor.
- When the OUTPUT SEL switch of MON OUT is in the [CAM] position, playback cannot be output to the LCD monitor. The viewfinder must be used to view playback.



# Selection of video output signals

The unit employs the HD SDI A · B connector and the MON OUT connector as connectors for outputting video signals.

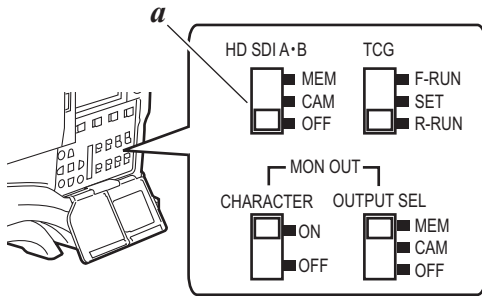
## Settings of signals output from HD SDI A · B connector

Change the characters of the signal output from the HD SDI A · B connector using the <OUTPUT SEL> screen from the menu. The character content output from the HD SDI A · B connector and MON OUT is the same.

The signals output from the HD SDI A · B connector are switched with the HD SDI A · B switch.

However, the switching operation is not acknowledged during the recording operation.

- MEM:** During EE, such as recording, video images taken by the camera are output. Meanwhile, signals on the P2 card are output during playback.
- CAM:** The camera images are output at all times.
- OFF:** No signal is output from the HD SDI A · B connector.



a. HD SDI A · B switch

Item	Variable range	Remarks
OUTPUT ITEM	<u>MENU ONLY</u> TC STATUS	Set the characters to be superimposed on the output signals from the HD SDI A · B connector and MON OUT connector. <b>MENU ONLY:</b> The menu screen is superimposed only when the menu is accessed. This normally displays nothing. <b>TC:</b> Time codes are superimposed. (When the menu is accessed, the menu screen is superimposed.) <b>STATUS:</b> The characters that are the same as the characters superimposed in the viewfinder screen are superimposed. (When the menu is accessed, the menu screen is superimposed.)
HD SDI A · B CHAR	<u>OFF</u> A B BOTH	<b>OFF:</b> The characters are not superimposed on the HD SDI A · B connector. <b>A:</b> The characters are superimposed on the HD SDI A connector. <b>B:</b> The characters are superimposed on the HD SDI B connector. <b>BOTH:</b> The characters are superimposed on the HD SDI A connector and the HD SDI B connector.

## Settings of signals output from MON OUT connector

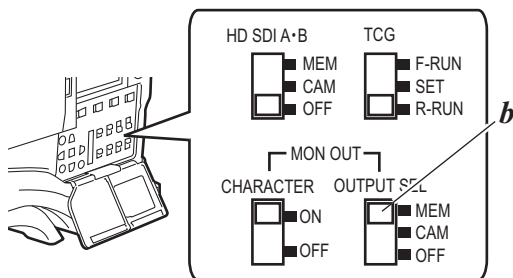
The MON OUT connector outputs HD SDI signals or down-converted analog signals.

Set the video signals output from the MON OUT connector by using the MONITOR OUT item on the menu (<OUTPUT SEL> screen on the SYSTEM SETTING page).

Item	Variable range	Remarks
MONITOR OUT	VBS HD SDI	Set video signals output from the MON OUT connector. <b>VBS:</b> Analog composite signals are output. <b>HD SDI:</b> HD SDI signals are output.

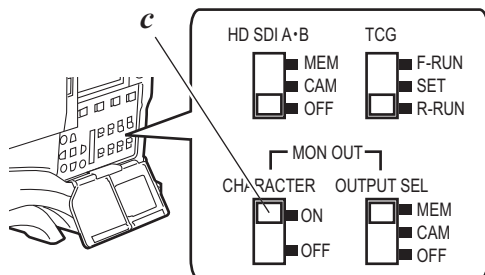
The signals output from the MON OUT connector are switched with the OUTPUT SEL switch. However, the switching operation is not acknowledged during the recording operation.

- MEM:** During EE, such as recording, video images taken by the camera are output. Meanwhile, signals on the P2 card are output during playback.
- CAM:** The camera images are output at all times.
- OFF:** No signal is output from the MON OUT connector.



b. MON OUT OUTPUT SEL switch

Set the characters to be superimposed on the signals output from the MON OUT connector in the OUTPUT ITEM item on the menu (<OUTPUT SEL> screen on the SYSTEM SETTING page).



c. MON OUT CHARACTER switch

### ◆ Note

When VBS has been selected as the MON OUT signal and the menu option SYSTEM MODE has been set to "1080-24PsF", the MON OUT signal is luminance signal video. The menu option SYSTEM MODE can be found in the <SYSTEM MODE> screen on the SYSTEM SETTING page.

# Handling data

## Set data file configuration

The unit employs 6 sets for the file data area.

### FACTORY data:

The area for storing factory settings  
Data cannot be revised with menu operations.

### CINEMATOGRAPH data:

The area for storing cinematograph settings.  
Data cannot be revised with menu operations.

### USER data:

The area for storing the data set by menu operations  
The FACTORY data is stored as the factory setting.

### CURRENT data:

The area for storing the operating status of the unit  
The set value in this area is revised by menu operations.

### SCENE file:

16 sets of scene files are provided.

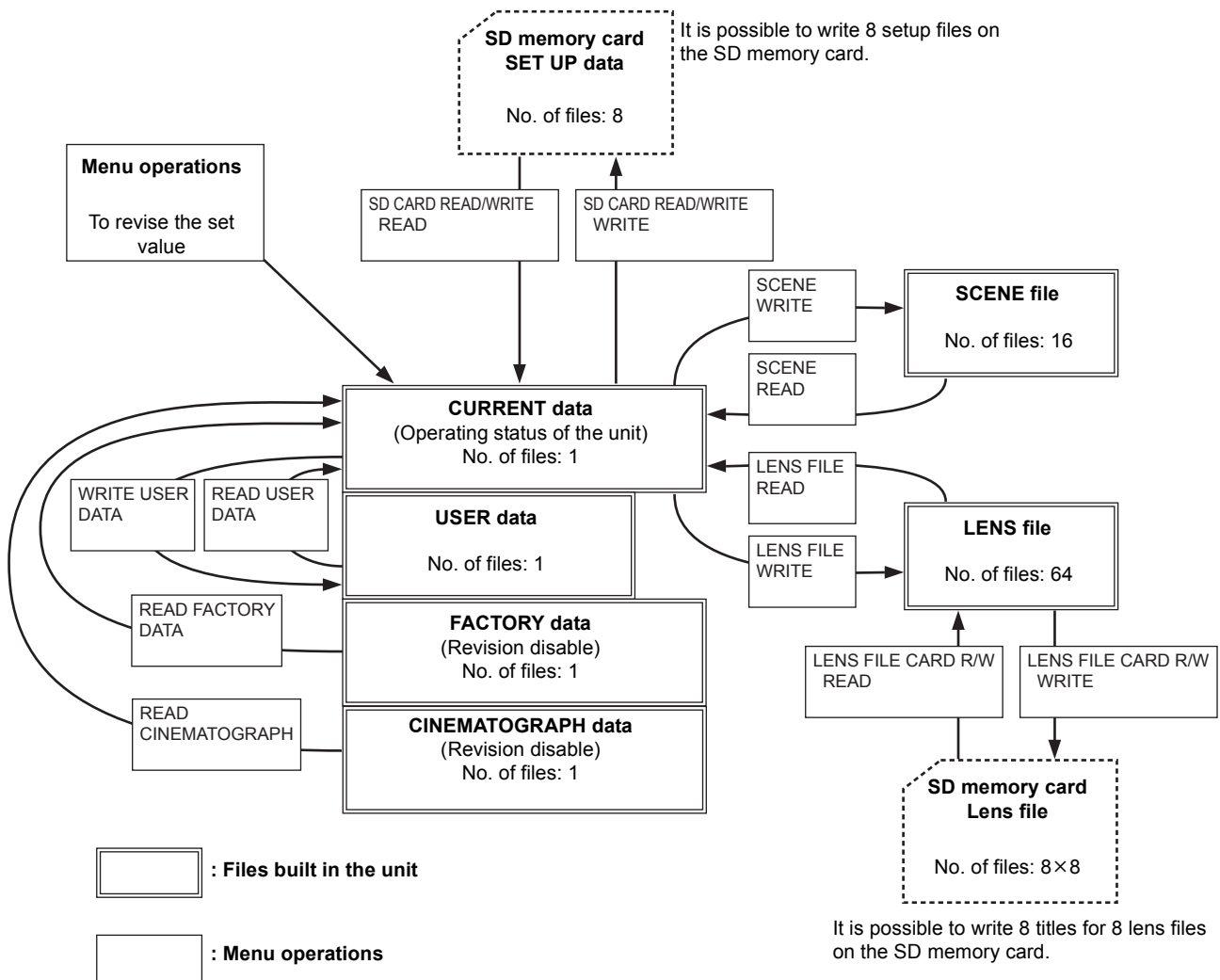
### LENS file:

64 sets of lens files are provided.

For menu items that can be read from or stored in the respective areas, refer to [Menu] (page 166).

### ◆ Notes

- For information about how to navigate through the menu for this section, see [Setting Menu Options] (page 168).
- Access the respective data settings files after switching the PC MODE to "OFF". If the respective data settings files are accessed when the unit is in USB DEVICE mode, an error may occur. The PC MODE can be operated from the <SYSTEM MODE> screen on the SYSTEM SETTING page.
- Do not edit the data stored on the SD memory card using a PC or the like.



## Setting Data Using an SD memory card

An SD memory card (optional) can be used as a setup card that stores up to 8 files of settings menu specifications. This data allows you to quickly reproduce an optimum state.

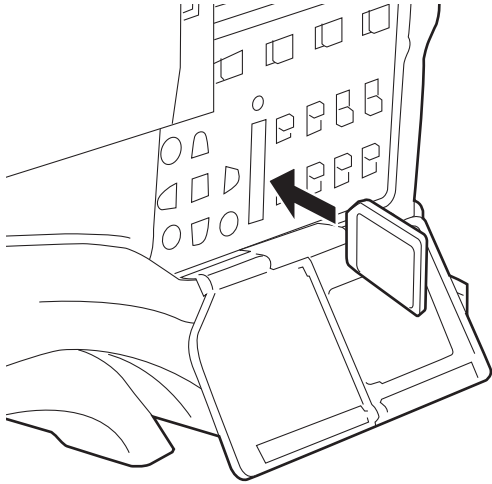
Regarding SD memory cards, please see <Cautions in using SD memory cards> (page 23).

## Handling SD memory cards

An SD memory card may be inserted or removed, either before or after the power is turned on.

### To insert an SD memory card

Open the lid of the switch cover, and insert an SD memory card (optional) into the SD memory card slot with the notch upward. Close the lid.



#### ◆ Note

An SD memory card must be inserted with the right side facing the slot. If the card is hard to insert, it may be reversed or upside down. Do not force it into the slot. Check the card before re-inserting it.

### To remove the SD memory card

Open the lid of the switch cover, and ensure that the busy lamp is not illuminated. Then, further depress the SD memory card towards the main unit. This releases the SD memory card from the insertion slot. Take hold of the SD memory card and remove it. Close the lid.

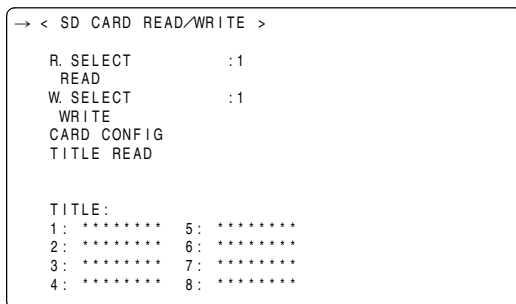
#### When using or storing SD memory cards, be sure to

- Avoid high temperature and humid environments
- Avoid water
- Avoid static electricity

For storage, the SD memory card must be kept inserted into the unit with the lid closed.

## SD memory card operations

To format an SD memory card, write settings data or read data on an SD memory card, navigate the menu to the <SD CARD READ/WRITE> screen from the FILE page.



Insertion of an SD memory card formatted to a standard other than the SD and SDHC standards using some other device will result in the display of "FORMAT ERROR" on the top right part of the window. In this case, reformat the card as follows.

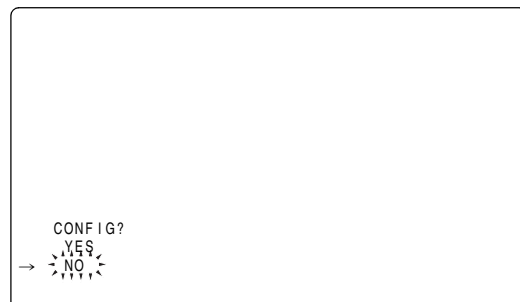
Note that the indication "FORMAT ERROR" does not disappear if the SD memory card is replaced with this menu page open. When the SD memory card is replaced, perform TITLE READ.

### To format an SD memory card

#### ◆ Note

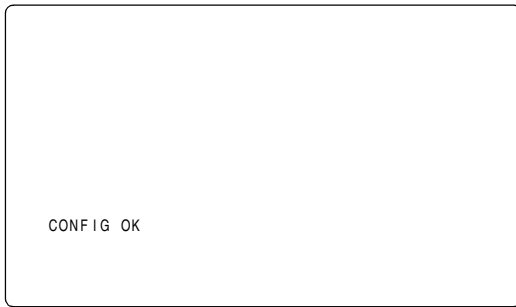
SD memory cards may be formatted via the thumbnail screen. For more information, see [Formatting SD memory cards] (page 141).

- 1 Navigate the menu to the <SD CARD READ/WRITE> screen.
- 2 Turn the jog dial button to move the arrow (cursor) to the menu option CARD CONFIG.
- 3 Press the jog dial button to display the following message:



- 4** To format the SD memory card, turn the jog dial button to move the arrow (cursor) to YES. Then, press the dial button.

When the SD memory card has been formatted, the following message appears:



The card will not be formatted if the following message appears when the jog dial button is pressed:

Error message	Remedy
CONFIG NG NO CARD (No SD memory card inserted.)	Insert an SD memory card.
CONFIG NG ERROR (SD memory card cannot be formatted.)	The card may be defective. Replace the card.
CONFIG NG WRITE PROTECT (SD memory card is write-protected.)	Remove the card and cancel the protect.
CONFIG NG CANNOT ACCESS (SD memory card not accessible).	Example: The SD memory card is not accessible because it is being played back. After the operation in process, format the card.

- 5** To exit the menu, press the MENU button.  
The settings menu disappears and the status of the unit is indicated at the top and bottom of the viewfinder screen.

◆ **Note**

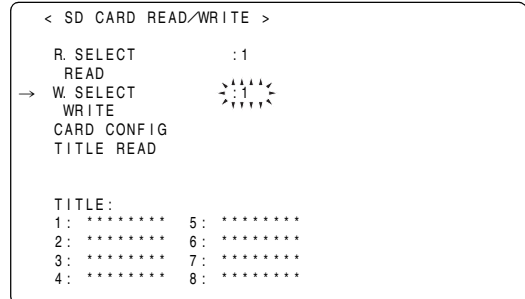
When an SD memory card is inserted or removed with the <SD CARD READ/WRITE> screen open, the titles of data on the card cannot be updated.  
Move the cursor to the option TITLE READ and press the jog dial button. The titles of the data will be updated.

To write set data on an SD memory card

- 1** Navigate the menu to the <SD CARD READ/WRITE> screen.

**To select a file number**

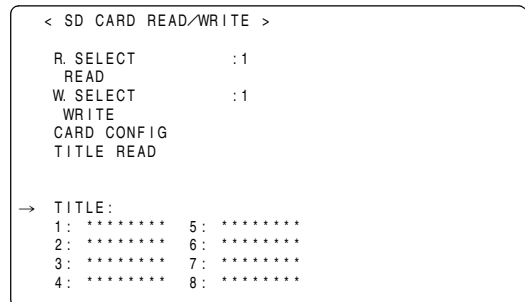
- 2** Turn the jog dial button to move the arrow (cursor) to the option W.SELECT. Then, press the dial button.



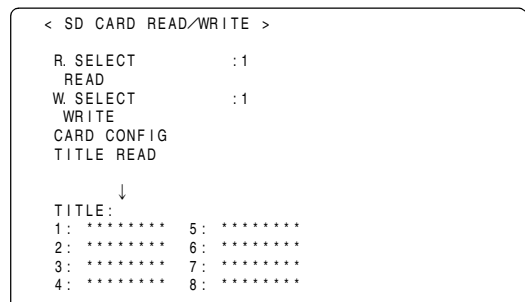
- 3** Turn the jog dial button to select a desired number (1 - 8). Then, press the dial button.

**To give the selected file a title**

- 4** Turn the jog dial button to move the arrow (cursor) to the option TITLE.



- 5** Press the jog dial button. This moves the arrow (cursor) to the entry area, putting the unit in entry mode.



**6** Turn the jog dial button until a desired character appears.  
The characters that appear are switched in the following order:

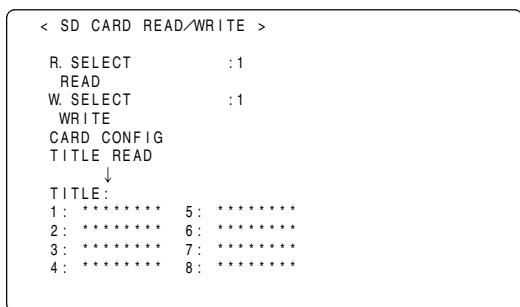
- Space: □
- ↓
- Alphabetical characters: A to Z
- ↓
- Numerals: 0 to 9
- ↓
- Symbols: ', >, <, /, -

**7** Press the jog dial button to accept a desired character.

**8** Turn the jog dial button to move the arrow (cursor) to the next digit (clockwise), and repeat steps 6 - 7 to set characters (up to 8 characters).

**To write data on a selected file**

**9** When the title is set, turn the jog dial button to move the arrow (cursor) to :



**10** Press the jog dial button to return the arrow (cursor) to the option TITLE.

**11** Turn the jog dial button to move the arrow (cursor) to the option WRITE.

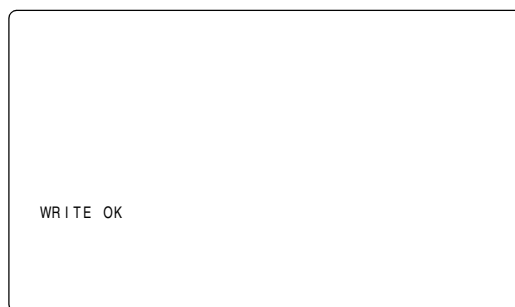
**12** Press the jog dial button to display the following message:



The data will not be written if any of the following messages appears when the jog dial button is pressed:

Error message	Remedy
WRITE NG NO CARD (No SD memory card inserted.)	Insert an SD memory card.
WRITE NG FORMAT ERROR (SD memory card not properly formatted.)	The card has not been formatted using the unit. Replace the card.
WRITE NG ERROR (SD memory card not writable.)	The card may be defective. Replace the card.
WRITE NG WRITE PROTECT (SD memory card write-protected.)	Remove the card and disable the protect.
WRITE NG CANNOT ACCESS (SD memory card not accessible.)	It is impossible to access the SD memory card while the card is in use. After completion of the respective operations, perform the write operation again.
WRITE NG CARD FULL (SD memory card has no free space.)	The card is not writable because it has no free space. Delete unwanted files or replace the card with a new one.

**13** Turn the jog dial button to move the arrow (cursor) to YES. Then, press the dial button.  
When the data has been written, the following message appears:



**14** To exit the menu, press the MENU button.  
The settings menu disappears and the status of the unit is indicated at the top and bottom of the viewfinder screen.

**◆ Notes**

- The <SD CARD R/W SELECT> screen can be used to select the type of the menu to be written on the SD memory card.
- It is possible to overwrite a setup file stored by a different device with a new setup file from this unit. Note that if the file is overwritten, the original setup file from the other device will be lost.
- We recommend managing the respective SD memory cards on the respective devices independently.



## How to Use the User Data

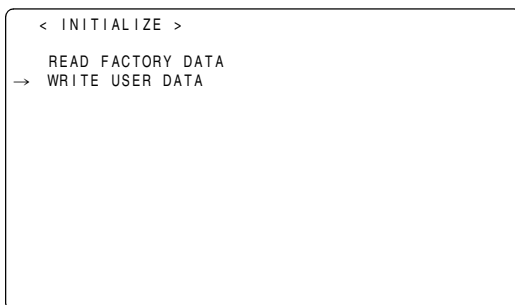
It is possible to write the settings data into the user area of the internal memory of the unit, or to read data written in this area.

This data allows you to quickly reproduce an optimum setup state.

To write data, go to the <INITIALIZE> screen from the FILE page. To read the written user data, go to the <SCENE> screen from the FILE page.

### To write settings data in the user area

- 1 Navigate the menu to the <INITIALIZE> screen.
- 2 Turn the jog dial button to move the arrow (cursor) to the option WRITE USER DATA.



- 3 Press the jog dial button to display the following message:

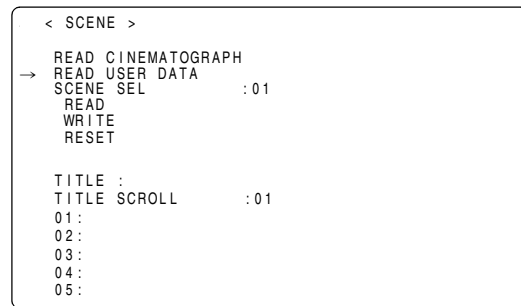


- 4 Turn the jog dial button to move the arrow (cursor) to YES. Then, press the dial button. This writes the settings data into the user area of the internal memory of the unit.
- 5 To exit the menu, press the MENU button.

### To read written user data

- 1 Navigate the menu to the <SCENE> screen.

- 2 Turn the jog dial button to move the arrow (cursor) to the option READ USER DATA.



- 3 Press the jog dial button to display the following message:

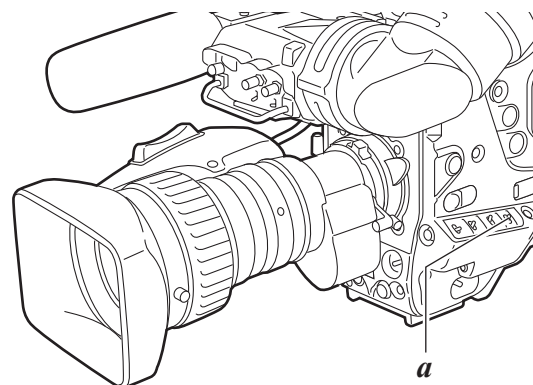


- 4 Turn the jog dial button to move the arrow (cursor) to YES. Then, press the dial button. The data written in the user area of the internal memory of the unit is read to complete the setting.

- 5 To exit the menu, press the MENU button.

The set user data may be also read without navigating the menu.

- 1 Turn off the POWER switch.
- 2 Position the WHITE BAL switch at [PRST].



a. WHITE BAL switch

- 3 With the AUTO W/B BAL switch flipped up, turn on the POWER switch. This resets all settings for USER menu options to their defaults.



## How to Use Scene File Data

It is possible to write the settings data into the scene file area of the internal memory of the unit, or to read data written in this area. 16 types of scene files are available. This data allows you to quickly reproduce an optimum setup state.

To use the scene file data, go to the <SCENE> screen from the FILE page.

### To write settings data for scene files

- 1 Navigate the menu to the SCENE screen.
- 2 Turn the jog dial button to move the arrow (cursor) to the SCENE SEL option.
- 3 Press the jog dial button to blink scene file numbers. Then, turn the dial button to select a desired scene file number (1 to 16).

```
< SCENE >
READ CINEMATOGRAPH
READ USER DATA
→ SCENE SEL      : 01
  READ
  WRITE
  RESET

TITLE :
TITLE SCROLL : 01
01 :
02 :
03 :
04 :
05 :
```

- 4 Press the jog dial button to accept the scene file.
- 5 Turn the jog dial button to return the arrow (cursor) to the option WRITE.

```
< SCENE >
READ CINEMATOGRAPH
READ USER DATA
SCENE SEL      : 01
→ READ
  WRITE
  RESET

TITLE :
TITLE SCROLL : 01
01 :
02 :
03 :
04 :
05 :
```

- 6 Press the jog dial button to display the following message:

```
WRITE?
  YES
→ NO
```

- 7 Turn the jog dial button to move the arrow (cursor) to YES. Then, press the dial button. This writes the setting data into the scene file area of the unit internal memory.

- 8 To exit the menu, press the MENU button.

## To read settings data for scene files

- 1 Navigate the menu to the <SCENE> screen.
- 2 Turn the jog dial button to move the arrow (cursor) to the option SCENE SEL.
- 3 Press the jog dial button to blink scene file numbers. Then, turn the dial button to select a desired scene file number (1 to 16).

```
< SCENE >
READ CINEMATOGRAPH
READ USER DATA
-> SCENE SEL      :01
  READ
  WRITE
  RESET

TITLE :
TITLE SCROLL :01
01:
02:
03:
04:
05:
```

- 4 Press the jog dial button to accept the scene file.
- 5 Turn the jog dial button to move the arrow (cursor) to the READ option.

```
< SCENE >
READ CINEMATOGRAPH
READ USER DATA
-> SCENE SEL      :01
  READ
  WRITE
  RESET

TITLE :
TITLE SCROLL :01
01:
02:
03:
04:
05:
```

- 6 Press the jog dial button to display the following message:

```
READ?
  YES
-> NO
```

- 7 Turn the jog dial button to move the arrow (cursor) to YES. Then, press the dial button. The data stored in the scene file area of the internal memory of the unit is read to complete the setting.
- 8 To exit the menu, press the MENU button.

## To return data for scene files to their defaults

- 1 Navigate the menu to the <SCENE> screen.
- 2 Turn the jog dial button to move the arrow (cursor) to the option SCENE SEL.
- 3 Press the jog dial button to blink scene file numbers. Then, turn the dial button to select the scene file that you want to reset (1 to 16).

```
< SCENE >
READ CINEMATOGRAPH
READ USER DATA
-> SCENE SEL      :01
  READ
  WRITE
  RESET

TITLE :
TITLE SCROLL :01
01:
02:
03:
04:
05:
```

- 4 Press the jog dial button to accept the scene file.
- 5 Turn the jog dial button to move the arrow (cursor) to the option RESET.

```
< SCENE >
READ CINEMATOGRAPH
READ USER DATA
-> SCENE SEL      :01
  READ
  WRITE
  RESET

TITLE :
TITLE SCROLL :01
01:
02:
03:
04:
05:
```

- 6 Press the jog dial button to display the following message:

```
RESET?
  YES
-> NO
```

- 7 Turn the jog dial button to move the arrow (cursor) to YES. Then, press the dial button. The data stored in the scene file area of the internal memory of the unit is reset to the defaults.
- 8 To exit the menu, press the MENU button.

## To title settings data for scene files

- 1 Navigate the menu to the <SCENE> screen.
- 2 Turn the jog dial button to move the arrow (cursor) to the TITLE item.

```

< SCENE >

READ CINEMATOGRAPH
READ USER DATA
SCENE SEL          : 01
READ
WRITE
RESET

→ TITLE :
TITLE SCROLL      : 01
01 :
02 :
03 :
04 :
05 :

```

- 3 Press the jog dial button to move the arrow (cursor) to the title entry area, putting the unit in entry mode.

```

< SCENE >

READ CINEMATOGRAPH
READ USER DATA
SCENE SEL          : 01
READ
WRITE
RESET

TITLE : ↓ *****
TITLE SCROLL      : 01
01 :
02 :
03 :
04 :
05 :

```

- 4 Turn the jog dial button until a desired character appears.  
The characters that appear are switched in the following order:

Space:                   □

↓

Alphabetical characters: A to Z

↓

Numerals:                0 to 9

↓

Symbols:                 ', >, <, /, -

- 5 Press the jog dial button to accept a desired character.
- 6 Turn the jog dial button to move the arrow (cursor) to the next digit (clockwise), and repeat steps 4 - 5 to set characters (up to 8 characters).
- 7 When the title is set, turn the jog dial button to move the cursor to : .
- 8 Press the jog dial button to return the arrow (cursor) to the options TITLE.
- 9 Turn the jog dial button to return the arrow (cursor) to the option WRITE.

- 10 Press the jog dial button to display the following message:

```

WRITE?
YES
→ - NO -
TITLE:

```

- 11 Turn the jog dial button to move the arrow (cursor) to YES. Then, press the dial button.  
This writes the title into the scene file area of the unit internal memory.
- 12 To exit the menu, press the MENU button.

## Resetting Menu Option Settings to Defaults

The menu settings can be reset to their defaults. To reset the settings to their defaults, select the menu option READ FACTORY DATA in the <INITIALIZE> screen on the FILE page. All settings will be reset to their defaults.

### ◆ Note

This operation does not delete the scene file, lens file, and the information stored as the user data.

```
< INITIALIZE >
→ READ FACTORY DATA
WRITE USER DATA
```

## Lens file

The built-in memory of the unit can store 64 sets of lens files. On the SD memory card, 8 titles for 8 sets of lens files in a table (total 64 sets) can be written.

The following data are recorded on the lens file.

- Title name
- White shading correction value
- Flare compensation value
- RB gain offset correction value

## How to provide lens files

### Adjustment of white shading

For the white shading adjustment, refer to [Adjusting the Lens White Shading] (page 118)

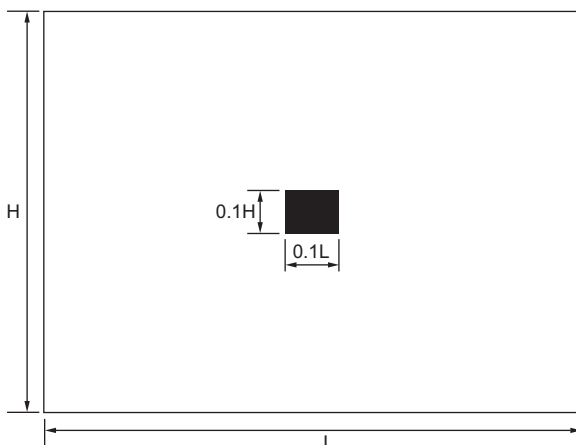
### Adjustment of the flare

Using the menu operations, open the <LENS FILE ADJ> screen from the MAINTENANCE page and adjust the flare in the LENS R FLARE item, the LENS G FLARE item and the LENS B FLARE item.

```
→ < LENS FILE ADJ >
RB GAIN CTRL RESET:ON
LENS R GAIN OFFSET:+000
LENS B GAIN OFFSET:+000

LENS R FLARE      :000
LENS G FLARE      :000
LENS B FLARE      :000
```

Example of the chart for flare adjustment



### Adjustment of RB gain offset

For correcting changes in white balance that may occur when replacing the lens.

- 1 Mount the lens as standard on the unit.
- 2 Shoot the grayscale chart with appropriate lighting (2000 lx, 3200 K are preferable).
- 3 Set the WHITE BAL switch to the [A] position.
- 4 Adjust the lens aperture so that the white window at the center of the grayscale chart is about 80%.
- 5 Push the AUTO W/B BAL switch to [AWB] to adjust the white balance automatically.
- 6 Measure the signal level of RGB by using the waveform monitor (WFM).
- 7 Replace the lens to one where a lens file is provided.
- 8 Adjust the lens aperture so that the signal level of Gch is the same signal level as the one obtained in 6 above.
- 9 Using the menu operations, open the <LENS FILE ADJ> screen from the MAINTENANCE page and set the RB GAIN CTRL RESET to "ON".
- 10 Adjust the signal level of Rch to be the same as Gch in the LENS R GAIN OFFSET item.
- 11 In the same way, adjust the signal level of Bch to be the same as Gch in the LENS B GAIN OFFSET item.

## To save the lens file into the built-in memory

### Select the file No.

- 1 Using the menu operations, open the <LENS FILE> screen from the FILE page.
- 2 Turn the jog dial button to move the arrow (cursor) to the FILE NO. item.
- 3 Press the jog dial button and the file number will flash. Turn the jog dial button to select the file (1 to 64) to be recorded.

```

< LENS FILE >
→ FILE NO.          :01
  READ
  WRITE
  RESET ALL

TITLE:

TITLE SCROLL      :01
01:
02:
03:
04:
05:
06:
    
```

- 4 Press the jog dial button to enter the file number.

### Give a title to the selected file.

- 5 Turn the jog dial button to move the arrow (cursor) to the TITLE item.

```

< LENS FILE >
FILE NO.          :01
  READ
  WRITE
  RESET ALL
→ TITLE:

TITLE SCROLL      :01
01:
02:
03:
04:
05:
06:
    
```

- 6 When the jog dial button is pressed, the arrow (cursor) moves to the title input area, and the input mode is established.

```

< LENS FILE >
FILE NO.          :01
  READ
  WRITE
  RESET ALL
  ↓
TITLE:
  ↓
TITLE SCROLL      :01
01:
02:
03:
04:
05:
06:
    
```

- 7 Press the jog dial button again and turn it until the character to be set is displayed. When the button is turned, the character displayed is switched in the following sequence:

Space:

↓

Alphabetical characters: A to Z

↓

Numerals: 0 to 9

↓

Symbols: ', >, <, /, -, ., , x

- 8 Press the jog dial button to enter the character.
- 9 Turn the jog dial button to move the arrow (cursor) to the next position (right), and repeat steps 7 and 8 to set the characters (maximum of 12).
- 10 When the title has been input, turn the jog dial button to move the arrow (cursor) to the : position.

```

< LENS FILE >
FILE NO.          :01
  READ
  WRITE
  RESET ALL
  ↓
TITLE:*****
  ↓
TITLE SCROLL      :01
01:
02:
03:
04:
05:
06:
    
```

- 11 When the jog dial button is pressed, the arrow (cursor) returns to the TITLE item.

```

< LENS FILE >
FILE NO.          :01
  READ
  WRITE
  RESET ALL
→ TITLE:*****
  ↓
TITLE SCROLL      :01
01:
02:
03:
04:
05:
06:
    
```

- 12 Turn the jog dial button to move the arrow (cursor) to the WRITE position.

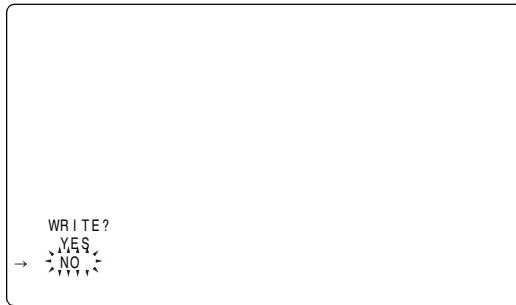
```

< LENS FILE >
FILE NO.          :01
→ READ
  WRITE
  RESET ALL

TITLE:*****

TITLE SCROLL      :01
01:
02:
03:
04:
05:
06:
    
```

- 13** When the jog dial button is pressed, the following message appears.



- 14** Turn the jog dial button to move the arrow (cursor) to YES, and press the jog dial button.  
The current white shading correction value, the flare compensation value, and the RB gain offset correction value are stored in the built-in memory of the unit.

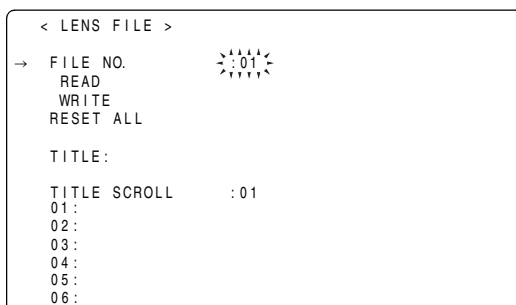
**◆Note**

The values will not be stored in the unit's internal memory if another menu screen is selected without executing WRITE or if the menu is exited.

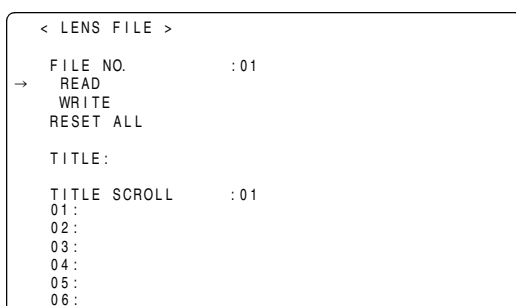
- 15** Press the MENU button.  
The setting menu is cleared, and the displays showing the unit's current statuses appear at the top and bottom of the viewfinder screen.

## To read the lens file from the builtin memory

- 1** Using menu operations, open the <LENS FILE> screen from the FILE page.
- 2** Turn the jog dial button to move the arrow (cursor) to the FILE NO. item.
- 3** Press the jog dial button and the file number will flash. Turn the jog dial button to select the file (1 to 64) to be read.



- 4** Press the jog dial button to enter the file number.
- 5** Turn the jog dial button to move the arrow (cursor) to the READ item.



- 6** When the jog dial button is pressed, the following message appears.



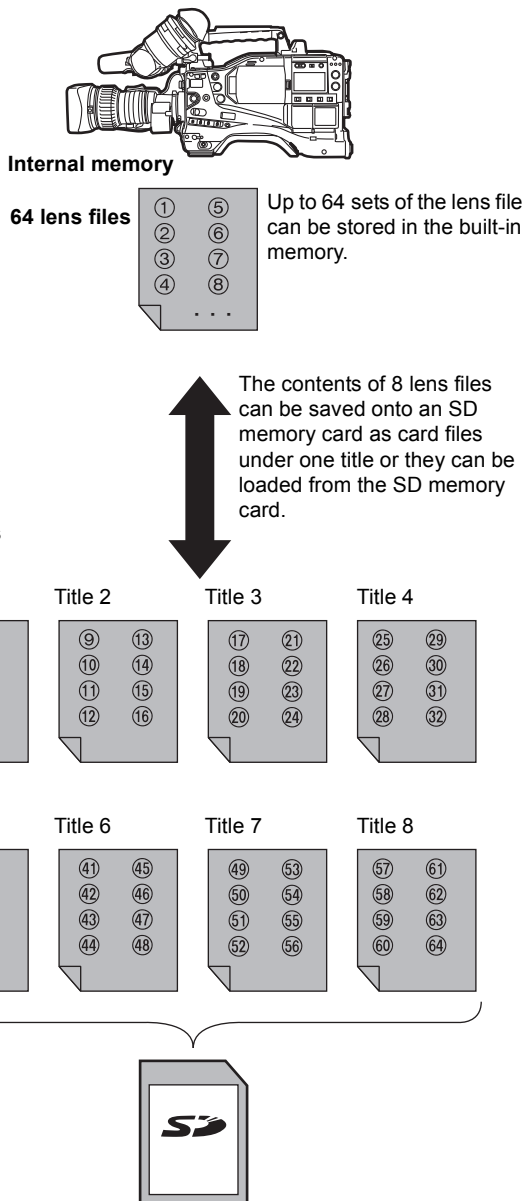
- 7** Turn the jog dial button to move the arrow (cursor) to YES, and press the jog dial button.  
The recorded correction values for the white shading, flare, and RB gain offset are read.
- 8** Press the MENU button.  
The setting menu is cleared, and the displays showing the unit's current statuses appear at the top and bottom of the viewfinder screen.

# To write in and read out the lens file to/from the SD memory card

The contents of the 8 lens files stored in the unit's internal memory can be saved onto an SD memory card as card files under a single title. A total of 8 titles can be saved on an SD memory card.

Furthermore, the 8 lens files saved under one title on an SD memory card can be loaded into the unit's internal memory.

The correlation between the lens files stored in the internal memory and lens files saved on an SD memory card is shown below.

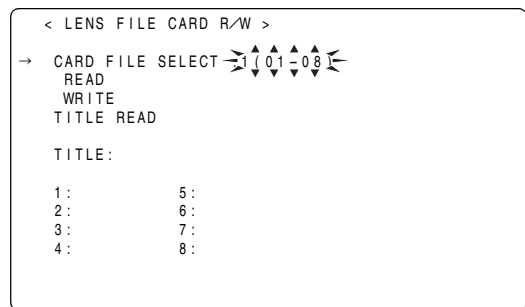


A total of 64 lens files (8 lens files × 8 titles) can be saved on an SD memory card.

## Saving lens files on the SD memory card

### Select the card file No.

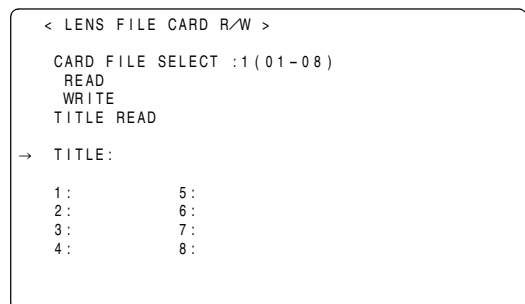
- Using menu operations, open the <LENS FILE CARD R/W> screen from the FILE page. When the message "FORMAT ERROR" appears in the upper right corner, format the SD memory card with the unit. SD cards can be formatted through the CARD CONFIG menu option on the <SD CARD READ/ WRITE> screen. For more information, see [Handling SD memory cards] (page 92).
- Turn the jog dial button to move the arrow (cursor) to the CARD FILE SELECT item.
- Press the jog dial button and the card file number will flash. Turn the jog dial button to select the file (1 to 8) to be recorded.



- Press the jog dial button to enter the file number.

### Give a title to the selected card file.

- Turn the jog dial button to move the arrow (cursor) to the TITLE item.

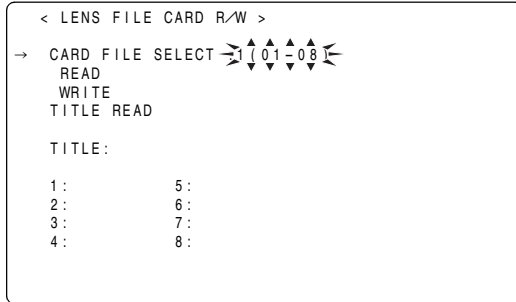


- When the jog dial button is pressed, the arrow (cursor) moves to the title input area, and the input mode is established.

Now perform step 7 on page 101 through step 15 on page 102.

## Loading lens files from the SD memory card

- 1 Using menu operations, open the <LENS FILE CARD R/W> screen from the FILE page.
- 2 Turn the jog dial button to move the arrow (cursor) to the CARD FILE SELECT item.
- 3 Press the jog dial button and the card file number will flash. Turn the jog dial button to select the file (1 to 8) to be read.



- 4 Press the jog dial button to enter the file number.

Now perform steps 5 through 8 on page 102.

### ◆Note

The card file titles on the SD memory card are displayed on the <LENS FILE CARD R/W> screen, but the titles of the lens files contained in the card files are not shown on this screen.

To display these titles, load the files, and check the titles on the <LENS FILE> screen.

The lens files in the unit's internal memory will be rewritten as the loaded lens files at this time. For this reason, save the lens files in the internal memory onto the SD memory card first to back them up before loading them on the SD memory card.

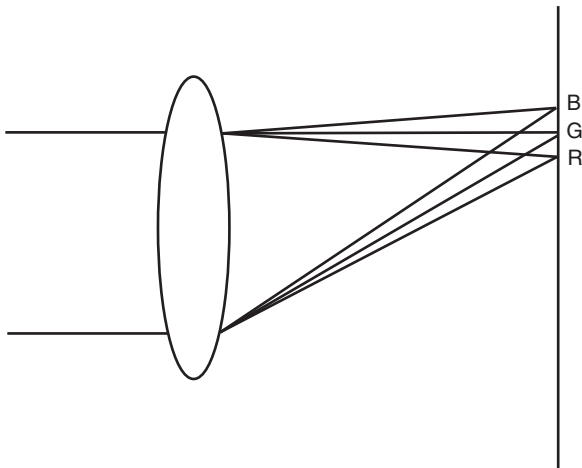


# Chromatic Aberration Compensation (CAC)

CAC is a function that automatically corrects registration errors mainly caused by slight chromatic aberration, which cannot be corrected with lenses, and minimizes color weepage on the images.

## What is the chromatic aberration?

Chromatic aberration means magnification ratio chromatic aberration. Magnification ratio chromatic aberration is caused by differences in the red (R), green (G), and blue (B) refractive indexes of a lens. The lens itself corrects chromatic aberration but the astigmatism remains in the surrounding area in particular. The zooming ratio, iris, and focal distance involves complicated chromatic aberration phenomena in a zoom lens. Images have registration errors.



## Chromatic aberration compensation function

To correct the chromatic aberration, record the chromatic aberration characteristics of the lens for the zooming ratio, iris, and focal distance in the unit and connect a lens suitable for these characteristics. Then perform the correction in accordance with the zooming ratio, iris, and focus distance of the lens.

The CAC data for the following 4 kinds of lenses are stored in the unit at the time of shipment from the factory.

Indication on the unit	Supporting lens model No.
HA16×6.3BERM-M58	HA16×6.3BERM-M58
HA22×7.8BERM-M58	HA22×7.8BERM-M58
HJ17e×7.6B IASE	HJ17E×7.6B IASE
HJ22e×7.6B IASE	HJ22E×7.6B IASE

### ◆ Note

After the release of this unit, visit our Web site at the address given below for details on new lenses compatible with this function and any changes in this function.

<http://pro-av.panasonic.net/>

## CAC operation

For the 4 lenses listed on the left

- 1 Install the lens on the unit and connect the lens connector.
- 2 Open the <CAC ADJ> screen on the MAINTENANCE page.
- 3 Turn on the CAC CONTROL.  
If the lens product number recorded on the unit coincides with the product number of the connected lens, the CAC data stored in the unit are read out automatically.

```

< CAC ADJ >
CAC CONTROL      :ON
CAC FILE DELETE  :ON
→ CAC FILE NO.  :01

TITLE SCROLL    :01
01:HA22X7. 8BERM-M58
02:HA16X6. 3BERM-M58
03:HJ17eX7. 6B IASE
04:HJ22eX7. 6B IASE
05:NO FILE
06:NO FILE
07:NO FILE
08:NO FILE
    
```

## Confirmation of the CAC operation status

- 1 When the menu is not displayed on the viewfinder screen, press the MODE CHECK button.  
If letters of the “CAC” are indicated at the left top of the viewfinder screen, the CAC is operating properly. If the letters of “CAC” are not indicated, the CAC is not operating.
- 2 Open <VF INDICATOR2> screen on the VF page and set the menu option CAC to “ON”, and then the letters of “CAC” are indicated in the left top of the viewfinder screen.

```

→ < VF INDICATOR2 >
CAC          :ON
GAMMA MODE   :ON
DRS          :ON
P-10LOG     :ON
VF GAMMA     :ON
MONITOR GAMMA :ON
    
```

## To read the CAC FILE from an SD memory card

- 1 Insert the SD memory card with the CAC file downloaded from our support website. For downloading, refer to the following URL.  
<http://pro-av.panasonic.net/>
- 2 Open the <CAC FILE CARD READ> screen from the FILE page via the menu operation.
- 3 Select TITLE READ using the jog dial button and then press the jog dial button.  
The lens product number is indicated in the TITLE column.

```

< CAC FILE CARD READ >
CARD FILE SELECT :01
  READ
  DELETE
-> TITLE READ

TITLE SCROLL :01
01:HA22X7. 8BERM-M58
02:HA16X6. 3BERM-M58
03:HJ17eX7. 6B IASE
04:HJ22eX7. 6B IASE
05:NO FILE
06:NO FILE
07:NO FILE
08:NO FILE
  
```

- 4 Select CARD FILE SELECT using the jog dial button and then press the jog dial button.
- 5 Select the TITLE No. to be read and press the jog dial button.
- 6 Select READ using the jog dial button and then press the jog dial button.  
The following screen is displayed.

```

FILE READ?
  YES
-> NO(CANCEL)

MEM STORE NO. :EMPTY
TITLE SCROLL :01
01:HA22X7. 8BERM-M58
02:HA16X6. 3BERM-M58
03:HJ17eX7. 6B IASE
04:HJ22eX7. 6B IASE
05:NO FILE
06:NO FILE
07:NO FILE
08:NO FILE
  
```

- 7 Select YES using the jog dial button and then press the jog dial button.  
The CAC file for the lens selected in step 4 is recorded in memory on the unit.  
If EMPTY is selected in MEM STORE NO.: EMPTY/1/2... at this time, data are recorded in available space of the CAC file numbers on the unit. If "1" is selected, the data will overwrite the contents of CAC file No. 1.

If the following messages are displayed when the jog dial button is pressed, the data cannot be read out.

Error message	Measures
READ NG NO CARD (No SD memory card is inserted)	Insert an SD memory card.
READ NG NO FILE (No file is available)	Select a file containing data and perform the read operation again.
READ NG ERROR (Data cannot be read out)	Insert an SD memory card again, and then perform the read operation again.
READ NG CANNOT ACCESS (It is impossible to access the data)	It is impossible to access the SD memory card while the card is in use. After completion of the respective operations, perform the read operation again.
READ NG FILE DATA INVALID (File data are abnormal)	The written file data have errors. Use the proper file data.
READ NG FILE MEMORY FULL (Memory is full)	The memory is full, and new data cannot be written on it. Delete unnecessary CAC data and then perform the write operation again.

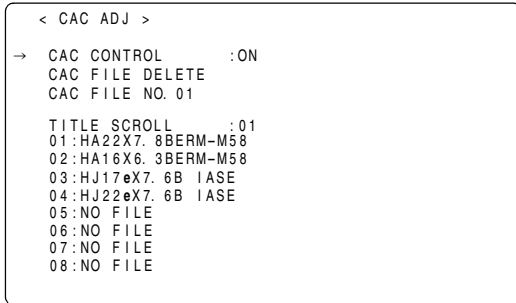
- 8 To store multiple CAC files in the unit, repeat steps 3 to 7.
- 9 To close the menu operation, press the MENU button.  
The setting menu disappears, and the current state of the unit is displayed.

### ◆ Notes

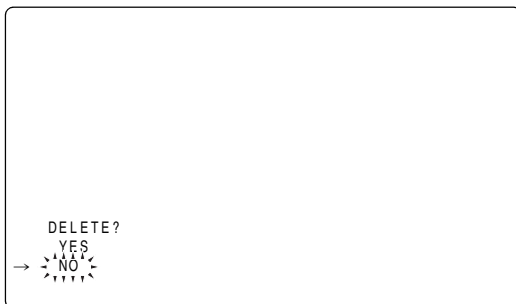
- The unit is capable of recording 32 CAC files. When the CAC file is full, delete any of the CAC files.
- While the SD memory card is inserted, the busy lamp for the SD memory card blinks, which is normal and not a malfunction.

To delete the CAC file from the unit

- 1 Open <CAC ADJ> screen from the MAINTENANCE page using the menu operation. The following screen is displayed.

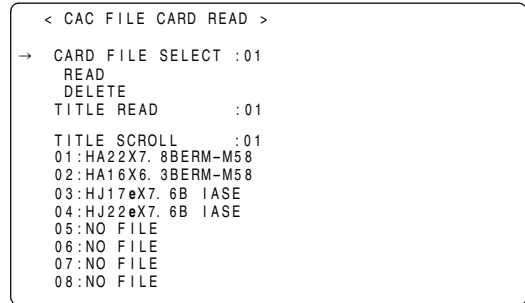


- 2 Select "OFF" in CAC CONTROL.
- 3 Select the lens product number to be deleted in CAC FILE NO. using the jog dial button.
- 4 Press the jog dial button to fix the selected operation.
- 5 Select CAC FILE DELETE using the jog dial button and then press the jog dial button.
- 6 When the following screen is displayed, move the arrow (cursor) to YES by turning the jog dial button and then press the jog dial button.

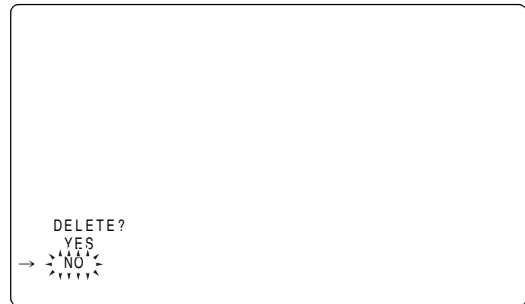


To delete the CAC file from the SD memory card

- 1 Open <CAC FILE CARD READ> screen from the FILE page using the menu operation. The following screen is displayed.



- 2 Select TITLE READ using the jog dial button and then press the jog dial button. The lens product number is displayed in the TITLE part.
- 3 Select CARD FILE SELECT using the jog dial button and then press the jog dial button.
- 4 Select the TITLE No. of the CAC file to be deleted, and then press the jog dial button.
- 5 Select DELETE using the jog dial button and then press the jog dial button. The following screen is displayed.

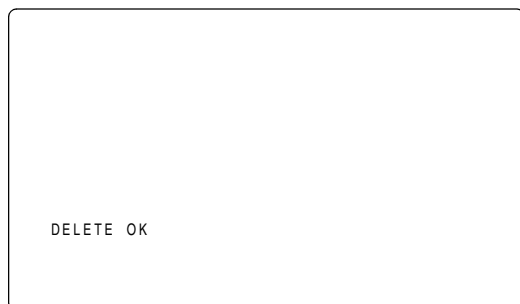


- 6 Move the arrow (cursor) to YES by turning the jog dial button and then press the jog dial button.

If the following messages are displayed when the jog dial button is pressed, the data cannot be deleted.

Error message	Measures
DELETE NG NO CARD (No SD memory card is inserted)	Insert an SD memory card.
DELETE NG ERROR (Data cannot be deleted)	It is assumed that the SD memory card is defective. Replace the card.
DELETE NG WRITE PROTECT (The SD card is write protected)	Eject the SD memory card and release write protection.
DELETE NG CANNOT ACCESS (It is impossible to access the data)	It is impossible to access the SD memory card while the card is in use. After completion of the respective operations, perform the delete operation again.
DELETE NG NO FILE (No file is available)	Select the file No. containing astigmatism files and perform the delete operation.

**7** Move the arrow (cursor) to YES by turning the jog dial button and then press the jog dial button. When the write operation is completed, the following message is displayed.



### When CAC file does not operate properly

The following error messages are displayed in the viewfinder when CAC does not operate properly or CAC files cannot be read properly.

Error message	Meanings	Measures
FILE MEMORY FULL	When the CAC file is read from the SD memory card to memory in the unit in EMPTY mode, the built-in memory is full.	Read the CAC file in a mode other than EMPTY mode.
CAC FILE DATA NOT FOUND	When the CAC function is set to ON and no CAC file applicable to the connected lens is available. This is displayed when the power of the unit is turned on.	Read the CAC file that is applicable for the lens to be used.
CAC LENS DATA INVALID	When the unit cannot respond to the return data from the lens, or when any responses other than ones as defined in the CAC file are returned.	This lens does not support CAC correction. Although it cannot execute CAC correction, using this lens presents no problems.
LENS INITIALIZE NOT COMPLETED	Initialization of the lens position detection (focus/zoom) in the encoder type is not completed yet.	Turn the focus/zoom ring to through the intermediate point of the operation range.

#### ◆ Notes

- When lens optical accessories (converter lens, attachment) are installed, the CAC may not operate properly due to changes in the optical characteristics of the lens. In this case, turn off the CAC function.
- When focus servo is used with Canon lenses, data must be recorded after initialization in the automatic initialization mode. The state where the focus ring is moving may be recorded.
- When the CAC does not operate and no error message is displayed, the version of the software for the lens may be out of date and invalid. Please contact the lens manufacturer.

# Cinematograph Settings

Menu items used for the film production are registered together in the scene file.

## Performing Cinematograph Settings

- 1 Open <SCENE> screen from the file page using the menu operation.
- 2 Select READ CINEMATOGRAPH with the JOG dial button, and press the JOG dial button.

```

< SCENE >
→ READ CINEMATOGRAPH
  READ USER DATA
  SCENE SEL      : 01
  READ
  WRITE
  RESET

TITLE :
TITLE SCROLL : 01
01 :
02 :
03 :
04 :
05 :
    
```

- 3 The following screen is displayed, and move the arrow (cursor) to "YES" by turning the JOG dial button, and press the JOG dial button. Data stored in the cinematograph area of the built-in memory will be read out, and the setting is completed.

```

READ?
  YES
→ NO
  YES
    
```

- 4 Press the MENU button to complete the menu operation.

### ◆ Notes

- It is recommended to use with the following settings after the cinematograph setting are read:  
GAIN switch: LOW  
OUTPUT/AUTO KNEE switch: CAM  
WHITE BAL switch: PRST
- As the cinematograph setting is read out, AWB memory will be set to 3200 K, and viewfinder marker will be set to A.

## Confirmation and Modification of Cinematograph Settings

- 1 Open the USER MENU by pressing the MENU button.
- 2 Select the item to confirm with the JOG dial button, and press the JOG dial button.

```

**** USER MENU1 ****
→ SYSTEM MODE
  OUTPUT SEL
  BLACK GAMMA (LOW) : OFF
  B. GAMMA RANGE (LOW) : 1
  MASTER GAMMA      : 0.45
  GAMMA MODE SEL    : FILM-REC
  F-REC DYNAMIC LVL : 600%
  F-REC BLACK STR. LVL : 0%
  DETAIL             : OFF
  COLOR TEMP PRE     : 3200K
  SIDE SW LOCK       : OFF
  SD CARD READ/WRITE
  SCENE
    
```

- 3 Contents of the selected setting are displayed.

```

→ < SYSTEM MODE >

SYSTEM MODE      : 1080-23.98Psf
REC FORMAT       : AVC-I 100/24PN
CAMERA MODE      : 24P
VFR              : ON
24P VFR RANGE    : 24FRAME
FRAME RATE       : 24FRAME
USR SW F. RATE   : 24FRAME
SCAN REVERSE     : OFF
PC MODE SELECT   : USB HOST
PC MODE          : OFF
    
```

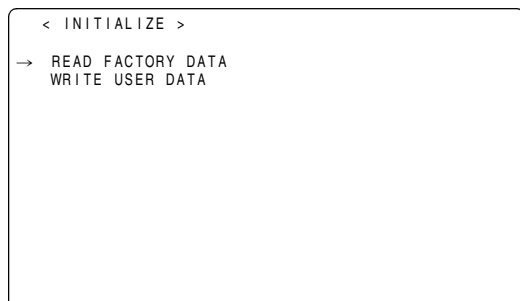
- 4 To change the setting, move the arrow (cursor) to the item to change, and set the item to change by pressing the JOG dial button.
- 5 Change the setting values using the JOG dial button.
- 6 Set the change by pressing the JOG dial button.
- 7 Press the MENU button to complete the menu operation.

### ◆ Note

It is possible to operate by displaying the MAIN MENU by pressing the MENU button for over 3 seconds, or displaying the OPTION MENU by pressing the LIGHT button even after the cinematograph is set.

## Return Cinematograph Setting to Factory Setting

- 1 Display the MAIN MENU by pressing the MENU button for over 3 seconds, then open the <INITIALIZE> screen from the FILE page.
- 2 Select READ FACTORY DATA with the JOG dial button, and press the JOG dial button.
- 3 The following screen is displayed, so move the arrow (cursor) to "YES" by turning the JOG dial button, and press the JOG dial button.  
Data stored in the Factory setting area of the built-in memory will be read in, and the setting is completed.



- 4 Press the MENU button to complete the menu operation.

## Difference Between Cinematograph Settings and Normal Settings

The following are the differences between the cinematograph setting and the normal factory settings.

### Menu settings

Page	Menu screen	Item	Factory setting	Cinematograph setting
SYSTEM SETTING	SYSTEM MODE	SYSTEM MODE	1080-59.94i	1080-23.98PsF
		VFR	OFF	ON
	OUTPUT SEL	SIGNAL FORMAT	4:2:2	4:4:4
		P-10LOG	OFF	ON
		OUTPUT ITEM	MENU ONLY	STATUS
		DOWNCON MODE	SQUEEZE	LT-BOX
	HD SDI A · B OUT MARKER	CENTER MARK	1	2
		FRAME MARK	OFF	ON
		FRAME SIG	4:3	VISTA
	MONI OUT MARKER	CENTER MARK	1	2
		FRAME MARK	OFF	ON
		FRAME SIG	4:3	VISTA
PAINT	LOW SETTING	■MATRIX TABLE	A	OFF
	MID SETTING	■MATRIX TABLE	A	OFF
	HIGH SETTING	■MATRIX TABLE	A	OFF
	■CAMERA SETTING	DETAIL	ON	OFF
VF	VF DISPLAY	STATUS MODE	NORMAL	FILM-REC
		LOW LIGHT LVL	35%	OFF
	VF MARKER	SAFETY MARK (A)	1	2
		FRAME MARK (A)	OFF	ON
		FRAME SIG (A)	4:3	VISTA
		SAFETY MARK (B)	1	2
		FRAME MARK (B)	OFF	ON
		FRAME SIG (B)	4:3	VISTA
	VF INDICATOR1	EXTENDER	ON	OFF
		GAIN	ON	OFF
		ZOOM LVL	ON	OFF
		SYSTEM MODE	OFF	ON
	VF INDICATOR3	BATTERY	ON	OFF
		AUDIO LVL	ON	OFF
CAM OPERATION	SHUTTER SPEED	SYNCHRO SCAN2	ON	OFF
	SHUTTER SELECT	POSITION4 SEL	120.0deg	90.0deg
		POSITION5 SEL	90.0deg	45.0deg
		POSITION6 SEL	45.0deg	1/60
	USER SW	USER2 SW	VF GAM	REC SW
		MARKER SEL (USER3 SW)	VF MARK	VF GAM

**USER MENU**

<b>Page</b>	<b>Factory setting</b>	<b>Cinematograph setting</b>
USER MENU1	SYSTEM MODE	SYSTEM MODE
	OUTPUT SEL	OUTPUT SEL
	MASTER PED	BLACK GAMMA (LOW)
	BLACK GAMMA (LOW)	B.GAMMA RANGE (LOW)
	MASTER GAMMA	MASTER GAMMA
	F-REC DYNAMIC LVL	GAMMA MODE SEL
	F-REC BLACK STR LVL	F-REC DYNAMIC LVL
	DETAIL	F-REC BLACK STR LVL
	USER MAIN SW	DETAIL
	USER1 SW	SIDE SW LOCK
	USER2 SW	COLOR TEMP PRE
	MARKER SEL	SD CARD READ/WRITE
	TEXT MEMO SW	SCENE
SIDE SW LOCK		
USER MENU2	SD CARD READ/WRITE	No page display
	SCENE	
USER MENU (SYS)	REC FUNCTION	REC FUNCTION
	BRIGHTNESS (LCD)	BRIGHTNESS (LCD)
	COLOR LEVEL (LCD)	COLOR LEVEL (LCD)
	CONTRAST (LCD)	CONTRAST (LCD)
	BACKLIGHT (LCD)	BACKLIGHT (LCD)
	BATTERY SELECT	BATTERY SELECT
	FRONT VR CH1	FRONT VR CH1
	FRONT VR CH2	FRONT VR CH2
	FIRST REC TC	FIRST REC TC
HOURS METER	HOURS METER	

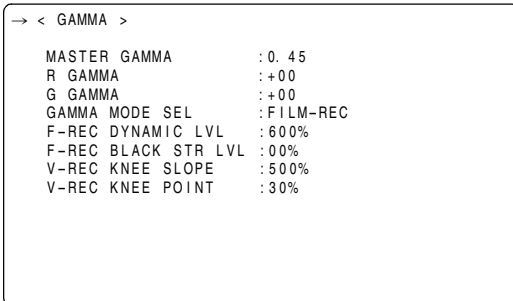
# RGB 4:4:4 Output and P-10LOG Settings

This unit can output signals suitable for Digital-Intermediate, which is a film production workflow.

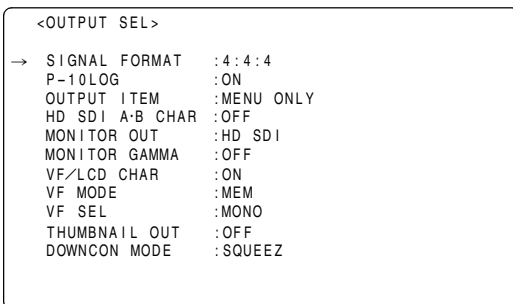
## RGB 4:4:4 Output and P-10LOG Settings

Link A signal is output from the HD SDI A connector and Link B signal is output from the HD SDI B connector by performing the cinematograph setting, and it is possible to set these signals as P-10LOG for RGB 4:4:4 output. For cinematograph settings, see page 109 and later. Refer to the following procedures to set the above without using the cinematograph setting.

- 1 Open the <GAMMA> screen from the PAINT page with menu operation.
- 2 Select GAMMA MODE SEL using the JOG dial button, and press the JOG dial button.



- 3 Turn the JOG dial button and select "FILM-REC", then press the JOG dial button.
- 4 Open <OUTPUT SEL> screen from SYSTEM SETTING page with menu operation.
- 5 Select SIGNAL FORMAT using the JOG dial button, and press the JOG dial button.

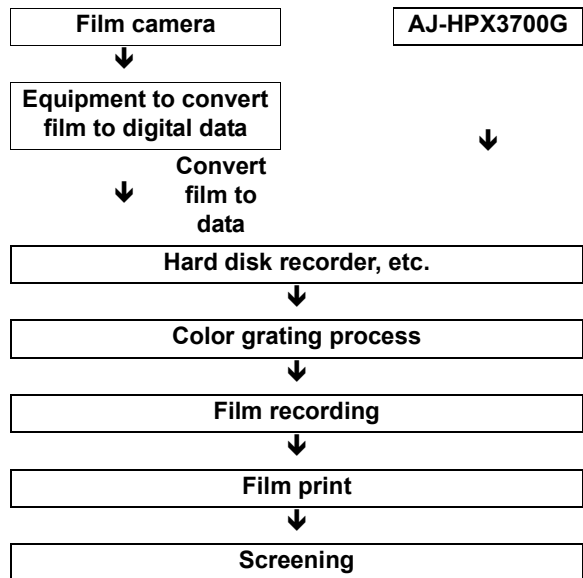


- 6 Turn the JOG dial button and select "4:4:4", then press the JOG dial button.
- 7 Select P-10LOG using the JOG dial button, and press the JOG dial button.
- 8 Turn the JOG dial button and select "ON", then press the JOG dial button.
- 9 Press the MENU button to complete the menu operation.

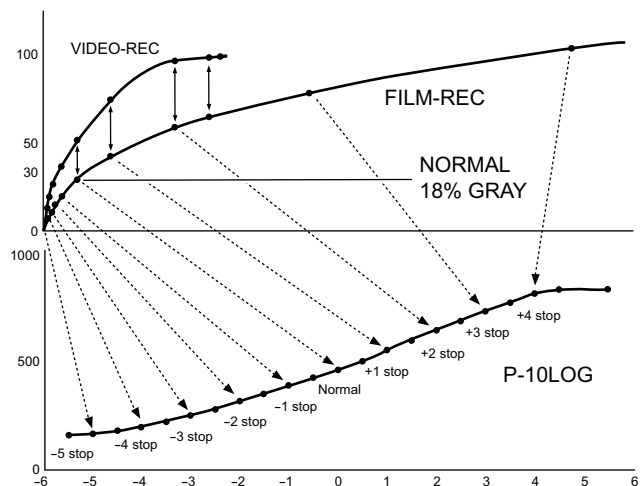
### ◆ Notes

- Recording to the P2 card and MON OUT signal will be YPbPr 4:2:2 even if the signal is set to P-10LOG for RGB 4:4:4.
- If you select "ON" in P-10LOG setting, 2D-CMS will operate in accordance with P-10LOG as well.

### Example of Digital Cinema Recording



### Transition Chart of FILM-REC Gamma to P-10LOG





# Preparation

## Power Supply

A battery pack or an external DC power supply can be used as the unit's power supply.

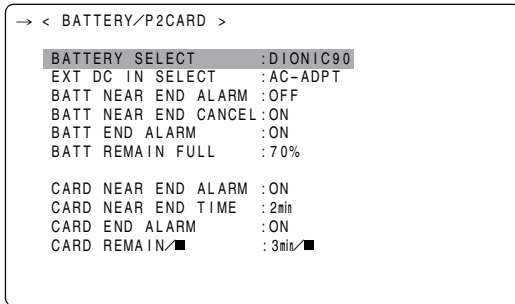
### Using a Battery Pack

Battery packs from the following manufacturers can be used:

- Anton/Bauer
- IDX
- PACO
- Sony

The type of the battery can be checked or changed through the menu screen on the viewfinder or on the monitor.

- Pressing the MODE CHECK button on the side of the unit displays the current type of the battery in the upper right corner of the viewfinder display.
- Navigate the menu to open the <BATTERY/P2CARD> screen from the MAIN OPERATION page. Then, through the BATTERY SELECT menu option, you can check and change the battery type.



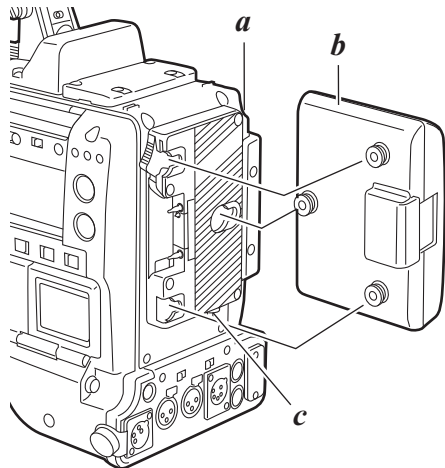
### ◆ Notes

- Other batteries may be used by changing the menu setting, but system compatibility is not guaranteed.
- Charge the battery pack with the battery charger before using it. (Please refer to the battery charger's instruction manual for information about charging.)

## Mounting the Battery and Setting the Battery Type

### Using an Anton/Bauer Battery Pack

- 1** Mount the Anton/Bauer battery pack.

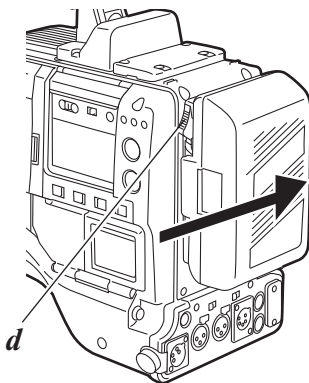


- a.* Power supply output connector for lighting  
*b.* Anton/Bauer battery pack  
*c.* Lighting control switch

#### <For your information>

The Anton/Bauer battery holder includes both a power supply output connector for lighting and a lighting control switch, which are convenient when attaching a light. Please contact Anton/Bauer for information about the lighting system.

- 2** Insert the battery and slide it in the direction of the arrow.



- d.* Release lever

#### <For your information>

##### Removing the battery pack

Completely push down and hold the release lever on the battery holder. Then, slide the battery pack in the opposite direction to the arrow while holding the lever down.

- 3** Setting the battery type.

Select the battery type listed under BATTERY SELECT. Select BATTERY SELECT from the <BATTERY/P2CARD> screen on the MAIN OPERATION page. Please refer to [BATTERY SETTING1] (page 196) for more information.

#### The following Anton/Bauer batteries can be used:

- PROPAC14
- TRIMPAC14
- HYTRON50
- HYTRON140
- DIONIC90
- DIONIC160

## Using an NP-1 type battery pack

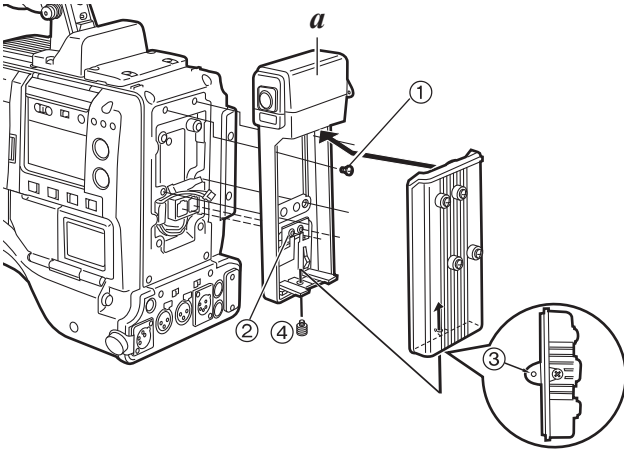
### CAUTION:

These servicing instructions are for use by qualified service personnel only. To reduce the risk of fire or electric shock do not perform any servicing other than that contained in the operating instructions unless you are qualified to do so.

- 1 Remove the battery holder.
- 2 Mount the NP-1 type battery case on the unit.
  - ① Tighten the mounting screws.
  - ② Tighten the power contact screws.
  - ③ Insert the upper part of the removed cover in the direction of the arrow.
  - ④ Align the holes in the bottom part (metal part) of the cover with the holes in the case, and secure the cover with the screw.

### ◆Note

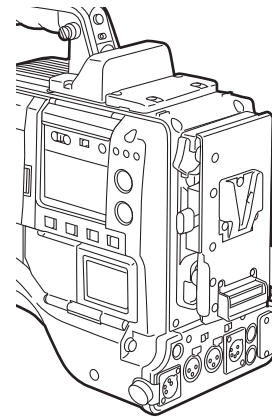
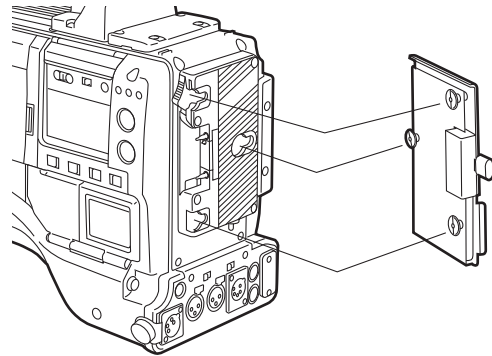
When mounting the battery holder, take care not to pinch the connection cord.



a. Battery case (for NP-1 type)

## When using a V-mount type battery pack

Mount the V-mount adapter plate (optional). Fit the plate, sliding it in the manner shown in the illustration.



- 3 Setting the battery type.

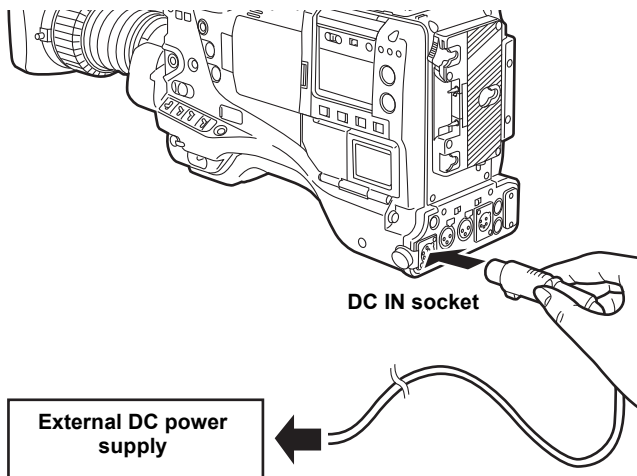
Select the battery type listed under BATTERY SELECT. Select BATTERY SELECT from the <BATTERY/P2CARD> screen on the MAIN OPERATION page. When using another battery which cannot be selected using the BATTERY SELECT item setting, select "TYPE A" or "TYPE B", and set the items that correspond to the characteristics of the battery. Please refer to [BATTERY SETTING2] (page 197) for more information.

### ◆Note

For information about the V-mount adapter plate, please contact the store where you purchased the unit.

## Use of the external DC power supply

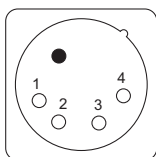
- 1 Connect the external DC power supply to the DC IN socket on the unit.



- 2 Turn on the power switch of the external DC power supply. (If the power switch is available on the external DC power supply.)
- 3 Turn on the POWER switch on the unit.

Inrush current is generated when the power of the unit is turned on. Insufficient power supply when turning on the power may cause a malfunction. We recommend using an external DC power supply with double the capacity of the total power consumption of the unit and any other connected device that is turned by interlocking with the power on of the unit (the viewfinder). Select the DC cord that is recommended for the external DC power supply.

Confirm the pin arrangements of the DC output connector of the external DC power supply and the DC IN socket on the unit, and connect the proper polarities to each other. If the +12 V power supply is connected to the GND connector in error, it may cause a fire or failure of the unit.



DC IN socket

Pin No.	Signal
1	GND
2, 3	—
4	+12 V

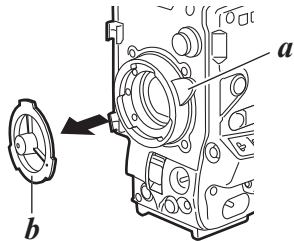
### ◆ Notes

- If both the battery pack and the external DC power supply are connected, the electric power is supplied from the external DC power supply. While the external DC power supply is used, the battery can be mounted and removed on/from the unit.
- When the external DC power supply is used, ensure that the power switch of the external DC power supply is turned on first and then the POWER switch on the unit is turned on. In the case of the reverse operation, a malfunction may occur on the unit since the output voltage of the external DC power supply is raised slowly.

# Mounting the lens and Performing the Flange Back and White Shading Adjustments

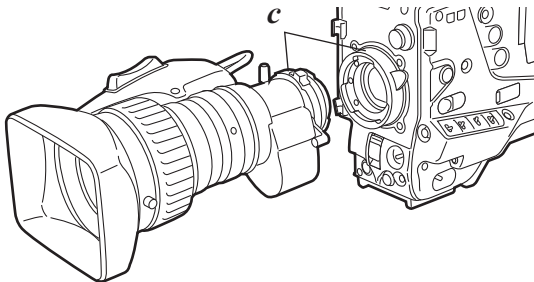
## Mounting the Lens

- 1 Raise the lens clamping lever and remove the mount cap.



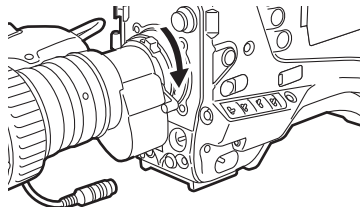
a. Lens clamping lever  
b. Mount cap

- 2 To mount the lens, align the indentation at the top center of the lens mount with the center mark of the lens.

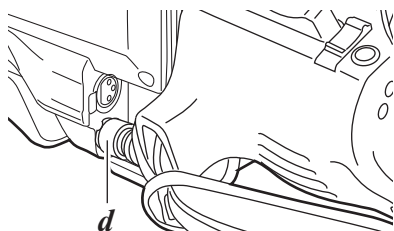


c. Mark

- 3 Lower the lens clamping lever to clamp the lens.



- 4 Secure the cable through the cable clamp, and plug it into the LENS connector.



d. LENS connector

- 5 Adjust the lens flange back.

### ◆ Notes

- Please refer to the lens instruction manual for guidance on lens handling.
- When the lens is removed, install the mount cap to protect the device.

## Adjusting the Lens Flange Back

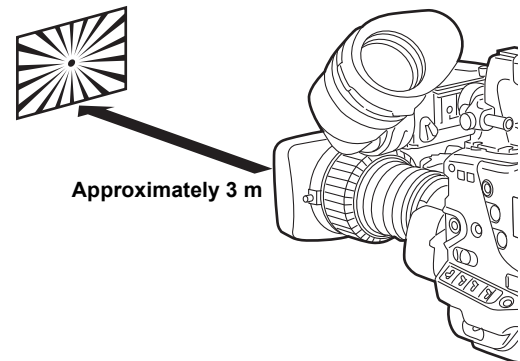
If images are not clearly focused at both telephoto and wide-angle positions during zoom operations, adjust the flange back (distance from the lens mounting surface to the image formation surface).

Once adjusted, the flange back does not need to be re-adjusted as long as the same lens is mounted on the camera.

### ◆ Note

Please also refer to the lens instruction manual for directions on adjustment and locations of individual lens parts.

- 1 Mount the lens on the camera.  
Make sure you connect the lens cable.
- 2 Set the lens iris to manual, and fully open the iris.



- 3 Place the flange back adjustment chart about 3 m from the lens and adjust the lighting on the chart to obtain an appropriate video output level.  
If the video level is too high, use the filters or the shutter.
- 4 Loosen the F.f (Flange focus) ring clamping screw.

### ◆ Note

F.b (Flange back) may be indicated on some lenses.

- 5 Set the zoom ring to the telephoto position, either manually or by electric drive.
- 6 Aim the lens at the flange back adjustment chart and turn the distance ring to bring the chart into focus.
- 7 Set the zoom ring to the wide-angle position and turn the F.f ring to bring the chart into focus.  
While focusing, take care not to move the distance ring.

- 8 Repeat steps 5 to 7 until the lens is in focus at both the telephoto and wide-angle positions.
- 9 Firmly tighten the F.f ring clamping screw.

### Adjusting the Lens White Shading

**Method to correct the waveform to be more flat by combining the sawtooth-shaped waveform and the parabola waveform when watching the respective waveforms of R, G and B of the video signals.**

#### ◆Note

Coloring may occur in the vertical direction near where the lens aperture is open even when the white shading has been adjusted. This is something that is inherent to lenses and optical systems and is therefore not indicative of a failure or malfunctioning.

- 1 Attach the lens to the camera.  
At this stage, do not forget to connect the lens cable.
- 2 Set the electronic shutter to OFF and the gain to "L (0 dB)."
- 3 If the extender is attached to the lens, release the extender function.
- 4 Perform a menu operation to open the <VF DISPLAY> screen from the VF page, check that the settings selected for the ZEBRA1 DETECT item, ZEBRA2 DETECT item and ZEBRA2 item match the settings shown in the figure below. If they differ, make the appropriate changes, and then close the menu screen.

-> < VF DISPLAY >	
STATUS MODE	: NORMAL
DISP CONDITION	: NORMAL
DISP MODE	: 3
VF OUT	: Y
VF DTL	: 05
VF DTL CORING	: 00
VF H. DTL FREQ.	: 4
ZEBRA1 DETECT	: 70%
ZEBRA2 DETECT	: 85%
ZEBRA2	: SPOT
LOW LIGHT LVL	: 35%
RC MENU DISP.	: ON
MARKER/CHAR LVL	: 50%
SYNCHRO SCAN DISP	: deg

- 5 Set the ZEBRA switch on the viewfinder to [ON].
- 6 Shoot a white sheet of paper with no unevenness of color.

#### ◆Note

Since fluorescent lights, mercury lamps and other such kinds of lighting tend to flicker, use a light source which is free from flicker such as sunlight or a halogen lamp.

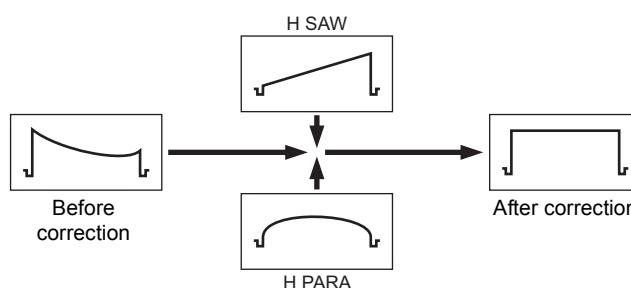
- 7 Set the lens aperture control to manual, and adjust it so that the zebra pattern covers the whole screen.  
Check that the lens aperture is between F4 and F10.

#### ◆Notes

- The zebra pattern will not cover the whole screen if there is any unevenness in the lighting. In this case, make adjustments to the position of the lighting, etc.
- Make adjustments to the position of the lighting, etc. also when the lens aperture is not between F4 and F10.
- Be absolutely sure to leave the electronic shutter at OFF.

- 8
  - ① Set the WHITE BAL selector switch to [A] or [B], and use the AUTO W/B BAL switch to adjust the white balance automatically (AWB).
  - ② Use the AUTO W/B BAL switch to adjust the black balance automatically (ABB).
  - ③ Again, use the AUTO W/B BAL switch to adjust the white balance automatically (AWB).
- 9 Repeat step 7.
- 10 Using the menu operation, open the <WHITE SHADING> screen from the MAINTENANCE page and a range of items from R H SAW item to B V PARA item, so that the waveform is more flat.

< WHITE SHADING >	
CORRECT	: ON
→ R H SAW	: +000
R H PARA	: +000
R V SAW	: +000
R V PARA	: +000
G H SAW	: +000
G H PARA	: +000
G V SAW	: +000
G V PARA	: +000
B H SAW	: +000
B H PARA	: +000
B V SAW	: +000
B V PARA	: +000



- 11 When an extender is fitted to the lens, switch on the extender function, and repeat steps 7-9. The unit stores, as one lens file data item, two different correction values, one for when the extender is fitted and the other for when it is not fitted. When a ratio converter is inserted, the correction value for the latter correction value is used.

When making the white shading correction, make the adjustment while observing the R, G, and B waveforms in the horizontal and vertical directions with the waveform monitor.

This now completes the white shading adjustments. The adjustment values are now stored in the non-volatile memory so that even when the unit's power is turned off, there will be no further need to perform the white shading adjustment.

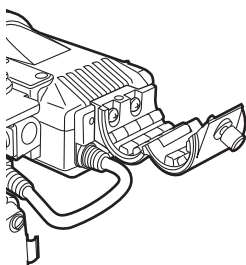
# Preparing for Audio Input

Take the following steps to prepare the camera for connecting audio input devices.

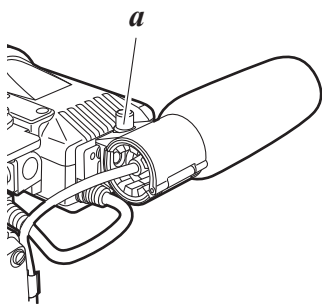
## When Using the Front Microphone

The unit can be equipped with the AJ-MC900G stereo microphone kit (optional).

- 1 Open the microphone holder.

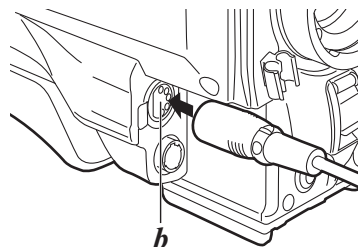


- 2 Mount the microphone and tighten the clamping screw. The microphone must be attached with the UP mark on the microphone facing up.



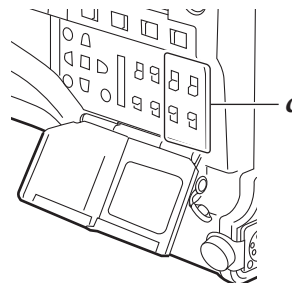
a. Clamping screw

- 3 Connect the microphone cable to the MIC IN jack on the camera.



b. MIC IN jack

- 4 Set the AUDIO IN switch to [FRONT] depending on the audio channel to be recorded.

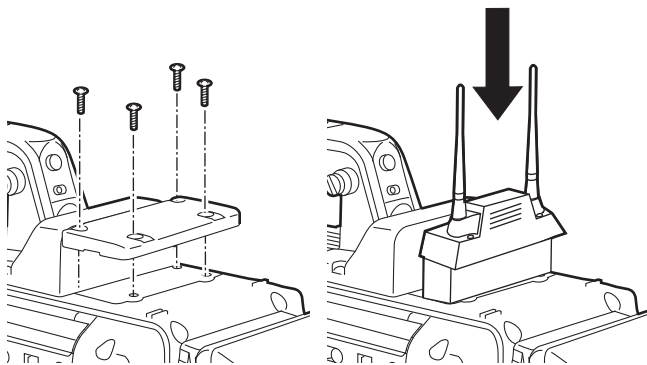


c. AUDIO IN switch

## When Using a Wireless Receiver

### When Using the Unislot Wireless Receiver

- 1 Remove the cover to insert the wireless receiver and secure it with the screws.



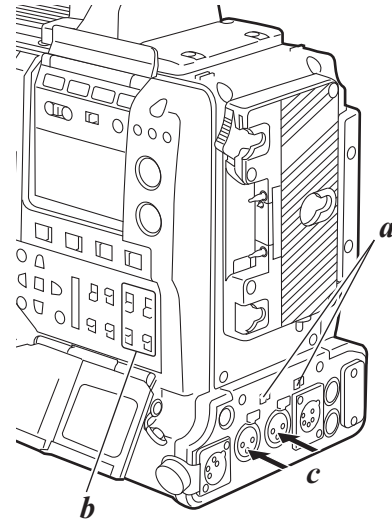
- 2 Set the AUDIO IN switch to [W.L.] depending on the audio channel to be recorded.

- 3 When using a 2-channel wireless receiver, select "DUAL" in the WIRELESS TYPE menu option. The menu option WIRELESS TYPE can be found in the <MIC/AUDIO2> screen on the MAIN OPERATION page.



## When Using Audio Devices

- 1 Connect the audio device to the AUDIO IN jack with the XLR cable.
- 2 Set the AUDIO IN switch to [REAR] for the channel to which the XLR cable is connected.
- 3 Set the LINE/MIC/+48V selector switch on the rear panel to [LINE].

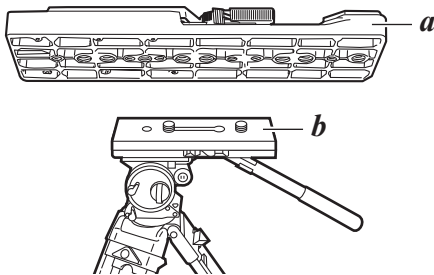


- a. LINE/MIC/+48V selector switch
- b. AUDIO IN switch
- c. AUDIO IN jack

## Mounting the Camera on a Tripod

When mounting the camera on a tripod, use the tripod adapter supplied with the camera.

- 1 Mount the tripod adapter on the tripod.

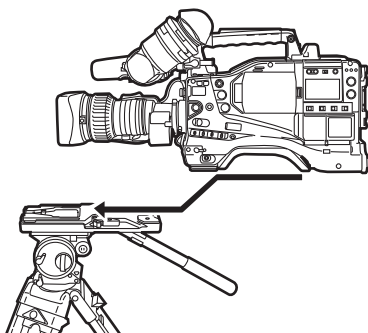


- a. Tripod adapter
- b. Pan head

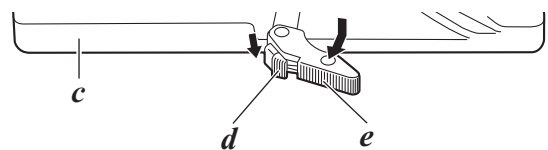
### ◆ Note

Select an appropriate hole in the adapter, taking into account the center of gravity of the camera and tripod adapter combined. Also, make sure that the diameter of the selected hole matches the diameter of the pan head screw.

- 2 Mount the camera on the tripod adapter. Slide the camera forward along the grooves until you hear a “click”.



### Removing the Camera from the Tripod Adapter



- c. Tripod adapter
- d. Red lever
- e. Black lever

While holding the red lever down, move the black lever in the direction of the arrow, and slide the camera backward to remove it.

### ◆ Note

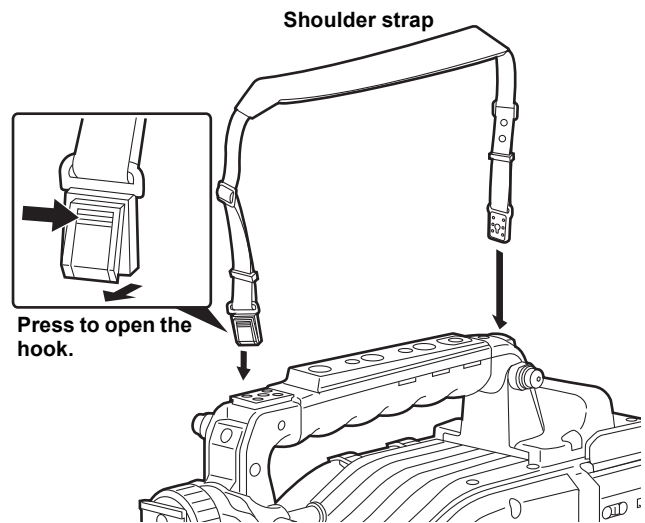
If the tripod adapter pin does not return to its original position after the camera has been removed, hold the red lever down and move the black lever in the direction of the arrow again, in order to return the pin to its original position. Please note that the camera cannot be mounted if the pin remains in the center.

# Attaching the Shoulder Strap

To detach the shoulder strap, first open the hooks, then detach the strap.

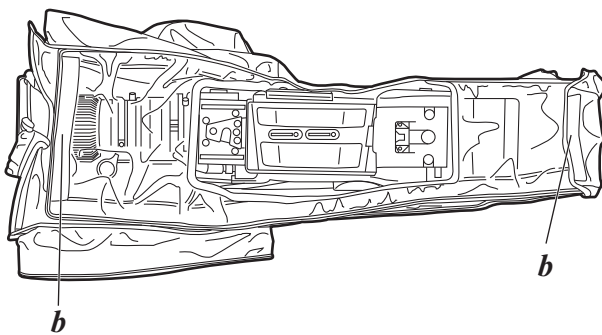
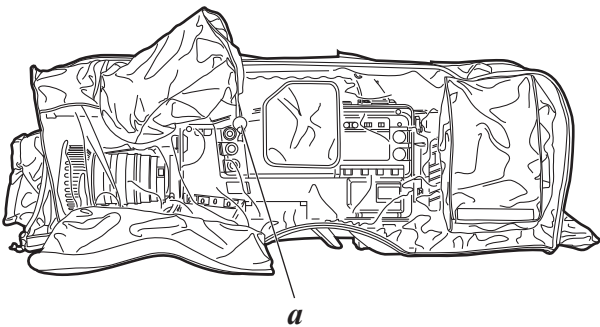
◆ **Note**

Make sure that the shoulder strap is securely attached.



# Attaching the Rain Cover

When using the SHAN-RC700 Rain Cover



- a.* Tighten the cord
- b.* Secure with the surface fastener

# Connection of the remote control unit (AJ-RC10G)

It is possible to control some of the functions remotely by connecting the remote control unit AJ-RC10G (optional). When AJ-RC10G is connected to the REMOTE connector on the unit and the power switches of both of the unit and AJ-RC10G are turned on, the unit automatically enters the remote control mode. The remote control mode is released when AJ-RC10G is removed or the power for the AJ-RC10G is turned off.

## Switch functions in the remote control mode

In the remote control mode, the following switches and buttons on the unit are disabled.

- SHUTTER switch
- MENU button
- Jog dial button
- GAIN switch
- OUTPUT/AUTO KNEE switch
- WHITE BAL switch
- USER MAIN button
- USER 1 button
- USER 2 button

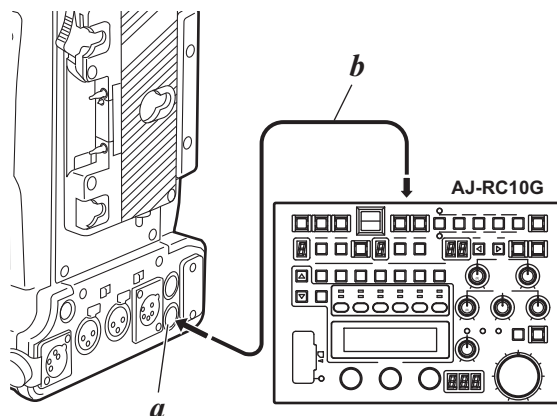
## Recording and playback Operations in the remote control mode

When the remote control is connected, recording and playback can be controlled through both the unit and the AJ-RC10G.

### ◆ Notes

- The state that was adjusted by connecting AJ-RC10G is stored in the unit. Not to store the adjusted state in the unit, open the FUNCTION MENU of AJ-RC10G to set the RC DATA SAVE item to "OFF".
- When the dedicated cable is connected or removed, ensure that the POWER switches on both the main unit and AJ-RC10G are turned off.
- Use Ver 1.11-00-000 or a later version of AJ-RC10G. See the P2 support page on the following website for information about upgrades to AJ-RC10G.

<http://pro-av.panasonic.net/>



a. REMOTE connector  
b. Dedicated cable

## Notes for the remote control unit

When this unit and AJ-RC10G are connected, the following functions differ from those described in the operating instructions that accompany AJ-RC10G.

### A. KNEE ON button

When "DRS" has been selected in the AUTO KNEE SW menu option of this unit, this button can be used to switch DRS on/off. This button is lit when DRS is on and not lit when DRS is off.

The menu option AUTO KNEE SW can be found in the <SW MODE> screen on the CAM OPERATION page.

### CHARA ON button

This button is used to select whether to superimpose characters on the video signal output to the MON OUT connector of this unit. Note that the MON OUT CHARACTER switch of this unit does not function when the AJ-RC10G is connected.

### Scene file

Scene files created on other types of device cannot be read. When an attempt is made to read such a file, AJ-RC10G displays "NG" on the liquid crystal screen.

### Menu option

#### GAMMA menu

- The options available in GAMMA-MODE-SEL are as follows.  
HD, SD, F-LIKE1, F-LIKE2, F-LIKE3, FILM-REC, VIDEO-REC
- DYMC-LVL and BSR-LVL are added to the 4th layer. The variable ranges for these are as follows.  
DYMC-LVL: 200% - 600%  
BSR-LVL: 00% - 30%  
Note, however, that these values can only be changed when "FILM-REC" has been selected in GAMMA-MODE-SEL.
- V-KNSLP and V-KNPNT are added to the 5th layer. The variable ranges for these are as follows.  
V-KNSLP: 150% - 500%  
V-KNPNT: 30% - 107%  
Note, however, that these values can only be changed when "VIDEO-REC" has been selected in GAMMA-MODE-SEL.

#### WHITE menu

- The variable range of COLR-TEMP-PRE, TEMP-A and TEMP-B is 2300K↓ - 9900K↑.

#### KNEE menu

- CHROMA LEVEL is added to the 5th layer. The variable range for this is OFF/-99% - +40%.
- HI-COLOR LVL is added to the 6th layer. The variable range for this is 1 - 32.

#### SHUTTER menu

- "S.S2" can be selected in MODE. The variable range for this is 1/1.0 - 1/250.0. The values which can be selected in SPED differ depending on the settings of this unit.

- When "FIX" has been selected in MODE, the options available in SPED are as follows.  
1/50, 1/60, 1/100, 1/120, 1/250, 1/500, 1/1000, 1/2000, HALF, 180.0d, 172.8d, 144.0d, 120.0d, 90.0d, 45.0d

The values that can be selected in SPED differ depending on the settings of the SYSTEM MODE menu option in this unit.

- SYNCRO SCAN DISP is added to the 2nd layer. When "S.S" has been selected in MODE, it is possible to select between SEC and DEG as units for the values displayed in SPED. The changes to the units are reflected in this unit.
- When "S.S" has been selected in MODE, the variable ranges of SPED are as follows.  
For SEC: 1/1.0 - 1/7200 (selectable values differ depending on the settings of this unit)  
For DEG: 3.0d - 350.0d

#### SKIN DTL menu

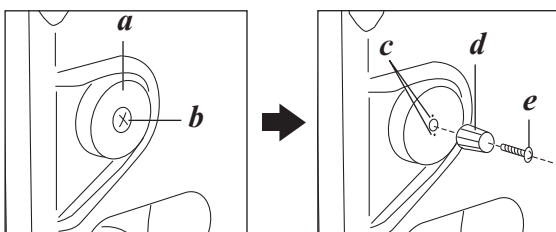
- The options available in OUTPUT are as follows.  
MONI, SDI A, SDI B
- A zebra is added to the colors of the table selected in SDTL.
- SCORG of the 3rd layer changes to SKIN DTL EFFECT. The variable range for this is 0 - 31.

#### FUNC menu

- The options available in SELECT of the 4th layer are as follows.  
INH, I.OVR, S.BLK, B.GAMMA, Y GET, DRS, ASSIST, C.TEMP, FRATE, VFR, VF GAM, AUDIO CH1, AUDIO CH2, REC SW, RET SW, PRE REC, SLOT SEL, PC MODE  
Note, however, that the C.TEMP function will not work when assigned to a user button on AJ-RC10G.
- The variable range of BLK-GAMMA of the 5th layer is -8 - 8.
- RANGE is added next to BLK-GAMMA of the 5th layer. The variable range for this is 1 - 3.
- FRAME-RATE is added to the 6th layer. The variable range for this is 1 - 60. Note, however, that the variable range will differ depending on the settings of this unit. Also, if the unit is not recording VFR, values can be changed but there is no effect on the image.

## Attaching the Front Audio Level Control Knob

If you use the FRONT AUDIO LEVEL control frequently, attach the accessory knob so that it can be easily operated.



- a. FRONT AUDIO LEVEL control
- b. Screw
- c. Marks
- d. Knob (included)
- e. Screw (included)

Remove the screw in the center of the FRONT AUDIO LEVEL control, and attach the accessory knob (included) using the screw (included). When attaching the knob, be sure to align the marks on the control with the marks on the knob.

# Connection of the DC OUT connector and External REC start/stop switch

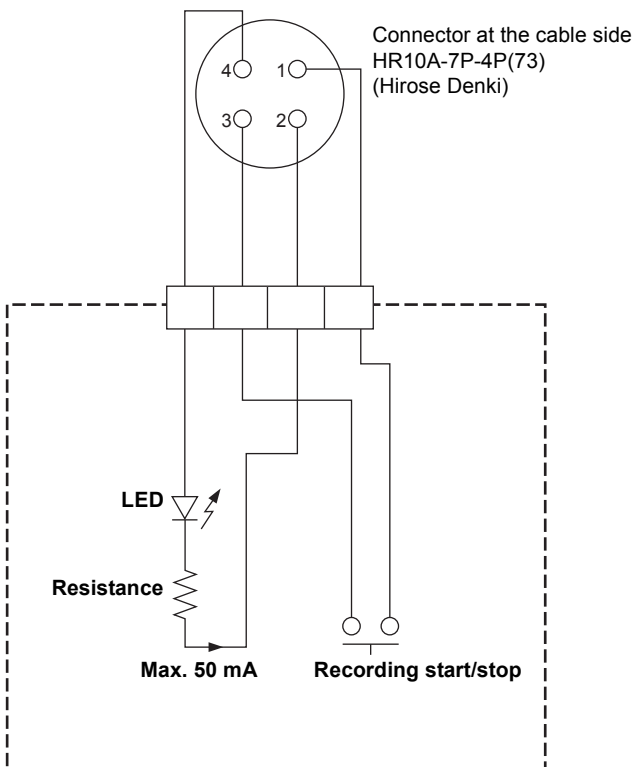
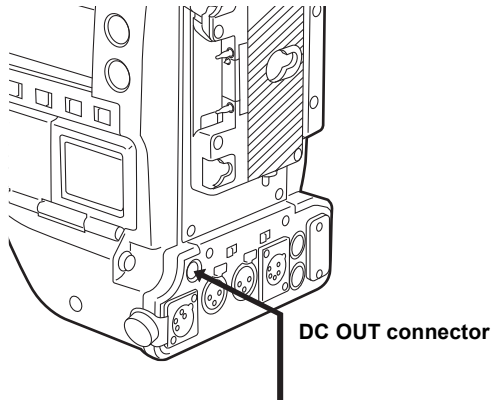
It is possible to draw 1.5 A current from the DC OUT connector of the unit.

Recording start/stop can be controlled by connecting an external switch to this connector.

Since a tally lamp can be used by connecting an LED to this connector, it is useful for shooting video when fixing the camera on a crane.

## ◆ Note

Make sure the total of current output from DC OUT, REMOTE, VF, and LENS connector do not exceed 2.5 A.



- 1: **GND**
- 2: **TALLY OUT**  
Open collector output on the unit side.  
TALLY ON: Low impedance  
TALLY OFF: High impedance
- 3: **Recording start/stop switch**  
This is connected in parallel to the REC START button on the unit or the VTR button on the lens.
- 4: **+12 V**

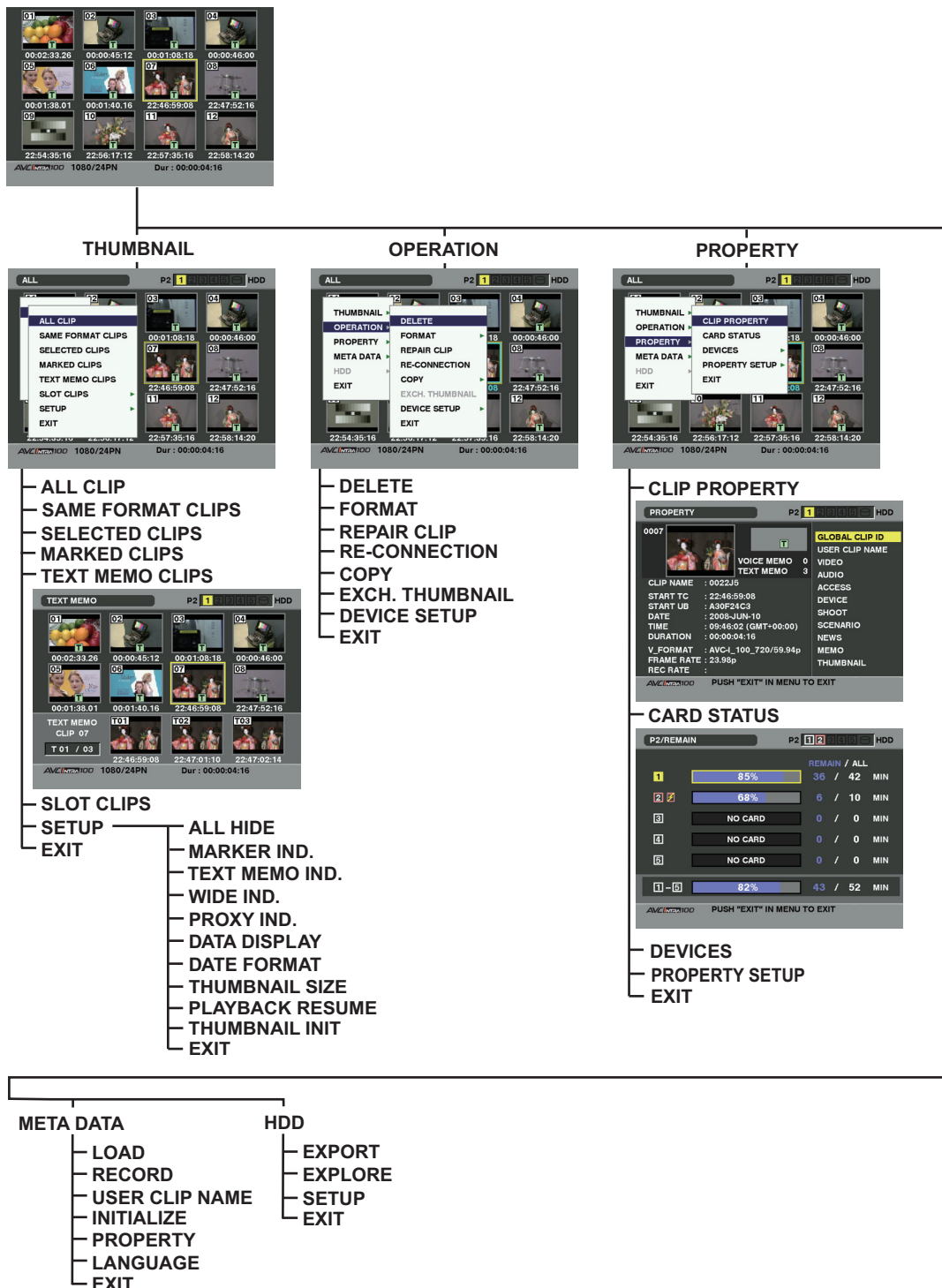
# Manipulating Clips with Thumbnails

A clip is a data group that includes the images and sounds created from one shooting session, together with additional information such as text memos and meta data. The following manipulations can be performed using the cursor and SET buttons, while checking the images displayed on the LCD monitor:

- Playback, delete, copy or restore the clip.
- Add or delete a shot mark and a text memo on the clip thumbnail.
- Copy part of a clip by using the text memo.
- Change the thumbnail image.
- Format P2 cards and SD memory cards.
- Uploading and editing clip metadata from the SD memory card

## Thumbnail Manipulations Overview

Thumbnail screens are configured as follows:



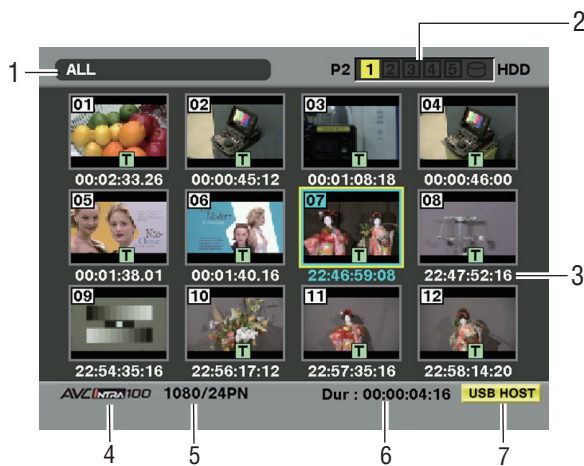
# Thumbnail Screen

Press the THUMBNAIL button to display the thumbnail screen on the LCD monitor. Pressing the THUMBNAIL button again returns the display to the regular display. When switching is done from the regular screen display to the thumbnail screen display, all the clips will be displayed on the thumbnail screen.

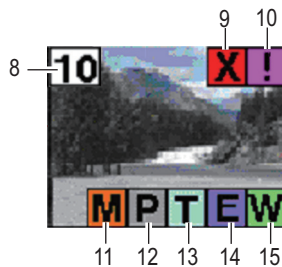
Pressing the THUMBNAIL MENU button allows you to navigate the thumbnail menu.

## ◆ Note

With the TCG switch positioned at [SET], when the time code or user bits are set or when camera menus are being manipulated, thumbnails cannot be manipulated.



Thumbnail screen



## 1. Display Mode

The type of the thumbnail indicated on the display and the types of the other information screens are indicated.

**ALL:** Display all clips.

**SAME FORMAT:**

The clips in the same format as the system format are shown. To check the format, consult system mode and REC FORMAT indicated on the STATUS screen of the viewfinder. For more details, refer to [Viewfinder Status Indication Layout] (page 77).

**SELECT:**

The clips selected with the SET button are shown.

**MARKER:**

Display clips with shot marks.

**TEXT MEMO:**

Display clips with text memo data.

**SLOT n:** Display clips in the specified P2 card. (n: 1 to 5, which indicates slots 1-5.)

**UPDATING..:**

Indicated when the unit is updating the screen or reading data. When the screen is being updated, the rotating icon is indicated.

Please refer to [Switching the Thumbnail Display] (page 130) for more information.

## 2. Slot numbers and HDD status

This section indicates on which P2 card the pointed clip is recorded. The number of the slot that contains the appropriate P2 card is indicated in yellow. If the clip is recorded on more than one P2 card, then the numbers of all slots that contain the appropriate cards are indicated. The numbers of the other slots are shown in white if they contain P2 cards.

When the following P2 card is inserted, the slot number is displayed with a pink frame.

- RUN DOWN CARD

(A P2 card on which the maximum number of overwrites has been exceeded.)

- DIR ENTRY NG CARD

(A P2 card on which the directory structure is not supported.)

The USB HDD section is indicated as follows:

- Other than the USB HOST mode: gray
- Not connected in USB HOST mode: gray
- HDD recognized and usable in USB HOST mode: white
- HDD recognized and thumbnails shown in USB HOST mode: yellow
- HDD recognized and data unable to be copied in USB HOST: red

## 3. Time Display

You can set this to display the time code at the start of clip recording, the user bits at the start of clip recording, the shooting time, the shooting date, the shooting date and time or USER CLIP NAME.

#### 4. **Recording mode**

The recording mode for the clip on which the pointer is located is indicated.

#### 5. **System mode**

The format for the clip on which the pointer is located is indicated.

#### 6. **Duration**

The duration of the clip on which the pointer is located is indicated.

#### 7. **USB HOST mode indicator**

Indicated when the mode has been switched to USB HOST.

#### 8. **Clip Number**

The numbers set by the camera for all the clips recognized correctly by the P2 card. These numbers are allocated in chronological order, by shooting dates and times.


If clips cannot be played because of different recording formats, they are displayed in red.

#### 9. **Defective Clip Indicator and** **Unknown Clip indicator**

This marker is displayed for defective clips, which may result from a variety of causes, e.g., powering-down during recording.

Clip with yellow defective clip indicators can be restored in some cases. Please refer to [Restoring Clips] (page 135) for more information.

A clip displayed with a red defective clip indicator cannot be restored and must be deleted. If the clip cannot be deleted, format the P2 card.

 is displayed for clips such as those which differ in format from the P2 standard.

#### 10. **Incomplete Clip Indicator**

Indicates that although a clip is recorded across multiple P2 cards, one of these cards is not inserted into a P2 card slot.

#### 11. **Shot Mark Indicator**

This marker is displayed for a clip with a shot mark attached. Please refer to [Shot Mark] (page 132) for more information about shot marks.

#### 12. **Indicator for clips with proxy**

This marker is displayed for clips with proxy attached.

#### 13. **Text Memo Indicator**

This marker is displayed for a clip with a text memo attached.

#### 14. **Edit Copied Clip Indicator**

In models which support edit copying, such as the AJ-HPM110, this marker is displayed on clips which have undergone edit copying. For more information about edit copying, see the instruction manual for a model that supports edit copying.

#### 15. **Wide Clip Indicator**

This marker is displayed for clips recorded with the 16:9 aspect ratio. However, it does not accompany clips in HD format.

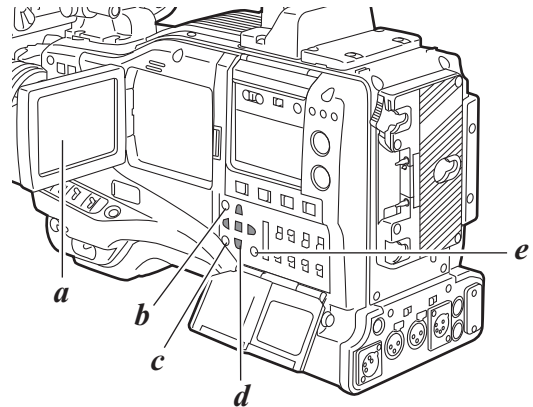


# Selecting Thumbnails

Multiple thumbnails can be randomly selected in the thumbnail screen.

- 1 Use the cursor buttons to move the pointer (yellow frame) to the desired clip and press the SET button. The frame around the selected thumbnail changes to a blue frame. Press the SET button again to deselect the clip.
- 2 Additional clips can be selected by repeating step 1.

It is possible to display only the selected thumbnails in the thumbnail screen for playback. Please refer to [Switching the Thumbnail Display] (page 130) for more information.



- a. LCD monitor
- b. THUMBNAIL button
- c. EXIT button
- d. cursor buttons
- SET button
- e. THUMBNAIL MENU button

# Playing back Clips

- 1 Press the THUMBNAIL button. The thumbnail screen appears on the LCD monitor.
- 2 Use the cursor buttons to move the pointer over the desired clip.
- 3 Press the PLAY/PAUSE button, and the clip under the pointer will be played back on the LCD monitor. After playback of the clip under the pointer, subsequent clips are played back in order, according to when they were shot. The thumbnail screen returns after the last clip has been played back.

## ◆ Notes

- When playing back clips, it is not necessary to “select” the clips (blue frames around the thumbnails).
- Clips with clip numbers displayed in red cannot be played.

- 4 During playback, pressing the REW button starts 4× speed reverse playback, and the FF button starts 4× speed fast playback. Press the PLAY/PAUSE button to return to normal playback.
- 5 During clip playback, pressing the PLAY/PAUSE button will temporarily stop (pause) the process. During a pause, pressing the REW button moves the pause position to the beginning of the clip. Pressing the REW button again moves the pause position to the beginning of the previous clip. During a pause, pressing the FF button moves the pause position to the beginning of the next clip.

- 6 Pressing the STOP button during clip playback stops the playback and returns the display to the thumbnail screen.

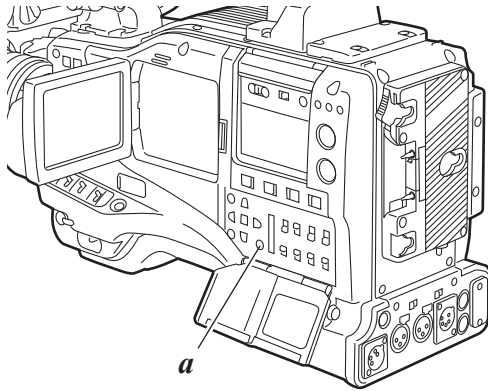
## ◆ Notes

- When playback is stopped, the position of the pointer moves to the clip that was being played back, regardless of where the playback started.
- When the PLAY/PAUSE button is pressed again, playback will start from the beginning of the clip on which the pointer is positioned. To begin playback from the last stop position, set PLAYBACK RESUME to on. Refer to [Setting the Thumbnail Display Mode] (page 142) for further details.
- After closing the thumbnail screen by pressing the THUMBNAIL button, pressing the PLAY/PAUSE button plays back the first clip (i.e., the clip with the earliest recording date and time), not the clip on which the pointer was last positioned.

# Switching the Thumbnail Display

The display can be switched so that only those clips matching the specified conditions are displayed in the thumbnail screen.

- 1 Press the THUMBNAIL button.  
The thumbnail screen appears on the LCD monitor.
- 2 Press the THUMBNAIL MENU button. The thumbnail menu appears.



a. THUMBNAIL MENU button

- 3 Select THUMBNAIL from the thumbnail menu. Switch the thumbnail display by selecting one of the following items:



**ALL CLIP:**

Display all clips.

**SAME FORMAT CLIPS:**

Displays clips of the current system format.

**SELECTED CLIPS:**

Display randomly selected clips.

**MARKED CLIPS:**

Display clips with shot marks attached.

**TEXT MEMO CLIPS:**

Display clips with text memo data attached.

**SLOT CLIPS:**

Display clips recorded in the P2 card inserted in the specified slot.

When this item is selected, "SLOT1" to "SLOT5" are displayed as a sub-menu. Select the desired slot to display the clips.

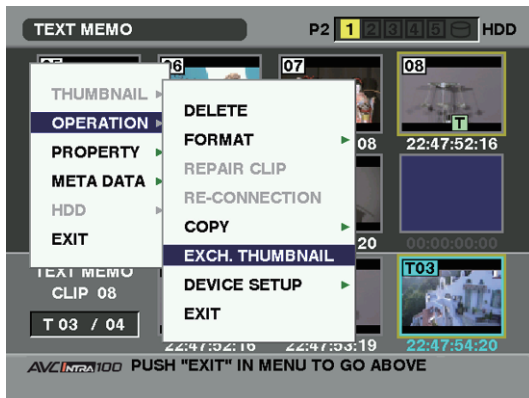
**SETUP:** Please refer to [Setting the Thumbnail Display Mode] (page 142) for information about this item.

**EXIT:** Close the sub-menu.

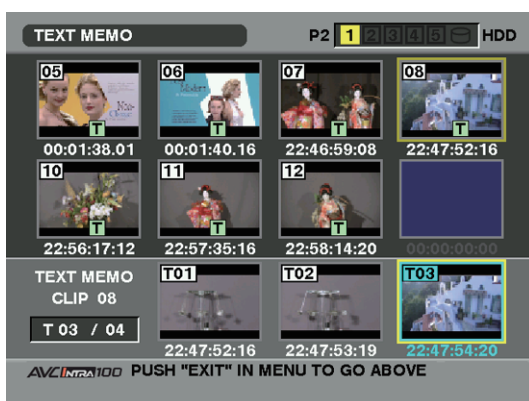
## Changing thumbnails

It is possible to replace thumbnails with images that include previously attached text memos while images are recorded or played back.

- 1 Add text memos to images that you intend to change. Refer to [Text Memo Function] (page 47) for the method to add text memos.
- 2 Select THUMBNAIL → TEXT MEMO CLIPS to display thumbnails of the clips with text memos.
- 3 Place the pointer on the clip of the thumbnail that you intend to change, and then press SET button. Move the pointer to the text memo display on the lower row.
- 4 Select the thumbnail that you intend to replace, place the pointer on it, and then select OPERATION → EXCH. THUMBNAIL on the thumbnail menu.



- 5 Press SET button. When the YES/NO confirmation window is displayed, select YES by using the cursor button and the SET button. The menu closes and the thumbnail for the clip is replaced.



### ◆ Note

Display clip properties by selecting PROPERTY → CLIP PROPERTY on the thumbnail menu to confirm the position of the thumbnail (the number of frames from the top of the clip). Since thumbnails come generally from the top of the clip, "0" is displayed.

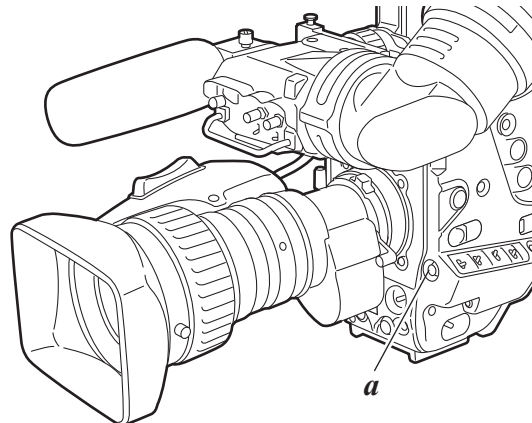
# Shot Mark

A shot mark can be added to a clip thumbnail to distinguish this clip from the others.

- 1** Press the THUMBNAIL button.  
The thumbnail screen appears on the LCD monitor.
- 2** Use the cursor buttons to move the pointer over the clip to which you want to attach a shot mark.
- 3** Press the SHOT MARKER button.
- 4** A shot mark will be attached to the clip thumbnail under the pointer.  
To delete a shot mark, reposition the pointer over the clip and press the SHOT MARKER button.

## ◆Notes

- A shot mark can be attached during recording. Please refer to [Shot Mark Function] (page 48) for more information.
- When adding a shot mark to (or deleting the shot mark from) a clip recorded across multiple P2 cards, do this with all these P2 cards inserted into P2 card slots.



a. SHOT MARKER button

# Text Memo

During recording or playback, you can add text memos to clips. Text memos can be used to play back clips at some point or break clips into chunks and copy the necessary portions.

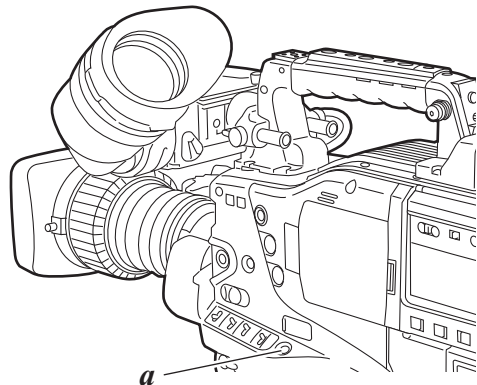
## Adding a text memo

Text memos can be added in one of the following ways.

- Press the TEXT MEMO button during recording or playback of a clip. A text memo is added to the position where the button is pressed.
- Press the TEXT MEMO button when the thumbnail screen is displayed. A text memo is added to the beginning of the clip.

## ◆Note

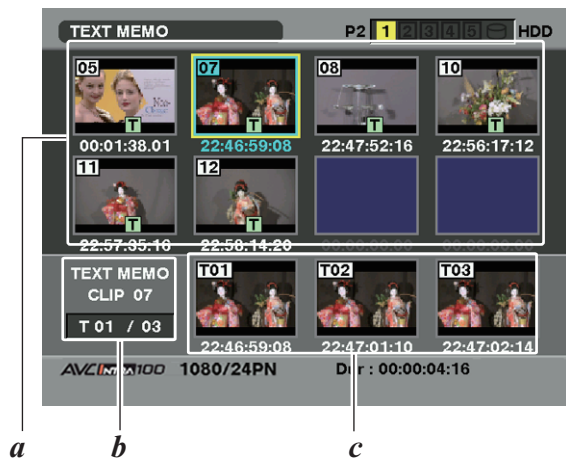
One clip can have up to 100 text and voice memos in combination. Note that the unit is not capable of adding or showing voice memos.



a. TEXT MEMO button

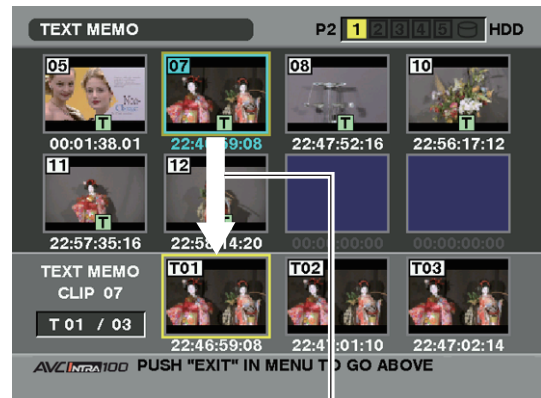
## Playing back a clip at the position where a text memo is recorded

- 1 Press the THUMBNAIL button.  
The thumbnail screen appears on the LCD monitor.
- 2 Press the THUMBNAIL MENU button and select THUMBNAIL → TEXT MEMO CLIPS from the thumbnail menu.  
The clip thumbnails with text memos attached are displayed in the upper section of the LCD monitor. The lower section of the LCD monitor shows information about the text memo on the clip selected by the pointer.



- a. Thumbnail display
- b. Shows the total number of text memos attached to the clip.
- c. Shows the still image that the text memo is related to.

- 3 Move the pointer over the clip that contains the desired text memo to playback and press the SET button.  
The pointer moves to the lower part of the LCD monitor.



- d. The pointer moves down.

- 4 With the pointer located in the lower part, move the pointer to the desired text memo number using the cursor right and left buttons (◀▶). Then, press the PLAY/PAUSE button.
- 5 Playback will start from the time code position of the text memo where the pointer is located.  
If the STOP button is pressed during playback or the playback has finished at the end of the clip, then the thumbnail screen appears again with the pointer replaced with the text memo where the playback started.
- 6 Press the THUMBNAIL MENU button to select EXIT or press the EXIT button to return the pointer to the upper part of the thumbnail screen.

### ◆ Note

For AVC-Intra format clips which cannot be played back, the clip thumbnails with text memos may not be displayed. In this case, a gray section will be displayed instead.

## Deleting a text memo

- 1 Select the desired text memo by carrying out steps 1-3 for [Playing back a clip at the position where a text memo is recorded] (page 133).
- 2 Move the pointer to the desired text memo, and then press the SET button.
- 3 Press the THUMBNAIL MENU button to select OPERATION → DELETE from the thumbnail menu.  
YES and NO appear to confirm deletion. Use the cursor buttons and the SET button to select YES.  
The text memo is deleted.

## Using a text memo to break a clip and copy the necessary portion

- 1 Select a desired text memo in a clip by carrying out steps 1-3 for [Playing back a clip at the position where a text memo is recorded] (page 133).
- 2 Move the pointer to the desired text memo, and then press the SET button. You can select more than one text memo.
- 3 Press the THUMBNAIL MENU button to select OPERATION → COPY.
- 4 Use the cursor buttons and SET buttons to select the destination slot. Then, select YES to start copying the clip. The portion between the selected text memo and the next one is copied. If no text memo is found after the selected one, then all part after the selected text memo is copied. If multiple text memos are selected, the selected sections are copied.

- 5 When the clip is being copied, the unit indicates the progress of the copy process and cancellation status. To discontinue the copy process, press the SET button. Then, a YES/NO confirmation screen is displayed. Use the cursor buttons and SET button to select YES.

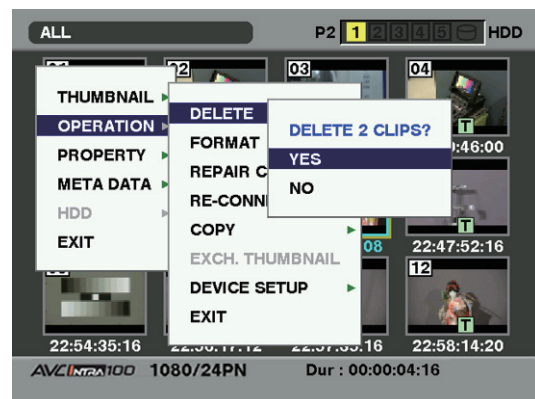
### ◆Note

When copying between text memos, the copied section may be automatically adjusted depending on the unit frame number of the employed recording methods. If the section to be copied is smaller than the unit frame number, the copy cannot be performed. For more about recording methods and unit frame numbers, refer to the table on page 44.

## Deleting Clips

- 1 Press the THUMBNAIL button.  
The thumbnail screen appears on the LCD monitor.
- 2 Use the cursor buttons to move the pointer over the clip you want to delete.  
Press the SET button to select the clip.
- 3 Press the THUMBNAIL MENU button and select OPERATION → DELETE from the thumbnail menu.

- 4 The following screen appears. Use the cursor buttons and the SET button to select YES.



- 5 The clip is deleted. All selected clips (in blue frames) are deleted by this operation.

### ◆Note

Pressing the SET button stops the deletion operation in the middle.

# Restoring Clips

Restores clips that are defective as a result of sudden powering-down during recording, or removal of the P2 card being accessed.


## ◆ Note

Only those clips with yellow defective clip indicators can be restored. Delete the clips with red defective clip indicators. If the clip cannot be deleted, format the P2 card. During restoration of the clips, however, the defective-clip indicator may change from yellow to red, resulting in inability to restore the clips.

- 1** Press the THUMBNAIL button.  
The thumbnail screen appears on the LCD monitor.
- 2** Use the cursor buttons to move the pointer over the clip you want to restore (defective clips are indicated by defective clip indicators).  
Press the SET button to select the clip.
- 3** Press the THUMBNAIL MENU button, and select OPERATION → REPAIR CLIP from the thumbnail menu.
- 4** The confirmation window appears. Use the cursor buttons and the SET button to select YES.


# Reconnection of Incomplete Clips

Incomplete clips may be generated when clips recorded on multiple P2 cards (connected clips) are separately copied to different cards. Reconnection function generates one clip (the original, connected clip) from incomplete clips.

- 1** Press the THUMBNAIL button.  
The thumbnail screen appears on the LCD monitor.
- 2** Use the cursor and SET button to select incomplete clips to reconnect.  
Usually, thumbnails of incomplete clips (clips with  marker) are displayed in line.

- 3** Press the THUMBNAIL MENU button and select OPERATION → RE-CONNECTION from the thumbnail menu.
- 4** The confirmation window appears. Use the cursor buttons and SET button to select YES.

## ◆ Note

 indication stays illuminated until all the incomplete clips that comprise the original clip are reconnected.

# Copying Clips

Selected clips can be copied to the P2 card in the desired slot or SD memory card.

- 1 Press the THUMBNAIL button.  
The thumbnail screen appears on the LCD monitor.
- 2 Use the cursor buttons to move the pointer to the desired clip and press the SET button.
- 3 Press the THUMBNAIL MENU button and select OPERATION → COPY from the thumbnail menu. Select slot 1-5 or SD memory card as the destination.



- 4 The confirmation window appears. Use the cursor buttons and SET button to select YES.



## ◆ Notes

- Do not turn off the power or remove a P2 card while data is being copied. Doing so may cause the P2 card to fail. If you should accidentally perform one of the above operations, defective clips will be generated. Delete them, and then copy them again.
- When clips are copied to P2 cards, all the information on the clips is copied. However, when they are copied to the SD memory card\*, video and sound information is not copied, only thumbnails, clip metadata, icons, voice memo, text memo, proxy, and real-time metadata.
- When there is insufficient recording capacity on the destination, the message "LACK OF REC CAPACITY!" is displayed, and copying will not proceed. When clips to be copied include some with defects, the message "CANNOT ACCESS!" is displayed, and copying will not proceed. If selected clips include any that are already recorded on the destination P2 card, copying will not proceed.
- To stop copying, press the SET button. Clips currently being copied to the destination will be deleted.
- When identical clips exist on the destination card, the "OVERWRITE?" is displayed. Select "YES" or "NO".

\* Regarding SD memory cards to be used, see <Cautions in using SD memory cards> (page 23).

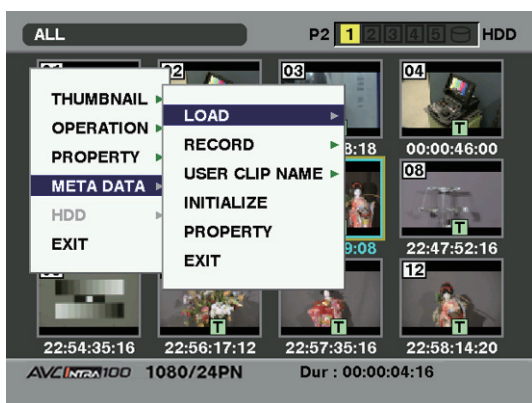


# Setting of Clip Meta Data

Information such as the name of person who shot the video, the name of the reporter, the shooting location, or a text memo can be read from the SD memory card, and can be recorded as Clip Meta Data.

## Reading Clip Meta Data (metadata upload)

- 1 Insert the SD memory card that contains the Clip Meta Data (metadata upload file).
  - 2 Press the THUMBNAIL button.  
The thumbnail screen appears on the LCD monitor.
- ◆**Note**  
Press the THUMBNAIL button while pressing MODE CHECK button when a thumbnail is displayed to move to step 4.
- 3 Press the THUMBNAIL MENU button and Select META DATA → LOAD from the thumbnail menu, and press the SET button.



- 4 Names of metadata upload files stored on the SD memory card are displayed\*. Select the desired files using the cursor buttons, and choose YES. Upload starts.  
Uploaded metadata is retained even if the power is turned off.  
For more information on confirmation of uploaded data, see [Checking and modifying read metadata] (page 138).

\* Press the cursor button (▷) to display the full name of the file, up to 100 characters, at the cursor position. Press the cursor button (◀) to return to the original state.

## Clip Meta Data items

Clip Meta Data includes the following items: Underlined items can be set by reading the metadata upload file on the SD memory card. Other items are set automatically during shooting. Using the latest update version of P2 Viewer, metadata upload files can be written to SD memory cards using a PC. Download the latest update version of P2 Viewer from the following URL and install it to your PC:

<http://pro-av.panasonic.net/>

Regarding SD memory cards to be used, see <Cautions in using SD memory cards> (page 23).

### ◆ Note

The file which was edited by except P2 Viewer is displayed as "UNKNOWN DATA!", and may not be read.

### GLOBAL CLIP ID:

Displays the global clip ID, which indicates the shooting status of the clip.

### USER CLIP NAME:

Displays the clip name specified by the user.\*1

**VIDEO:** Displays [FRAME RATE] (frame rate of the clip), [PULL DOWN], and [ASPECT RATIO].

**AUDIO:** [SAMPLING RATE] (sampling frequency of recorded sound) and [BITS PER SAMPLE] (digitized bit[s] of recorded sound).

**ACCESS:** Displays [CREATOR] (person who recorded the clip), [CREATION DATE] (date when the clip was recorded), [LAST UPDATE DATE] (date of the latest update of the clip), and [LAST UPDATE PERSON] (person who made the latest update of the clip).

**DEVICE:** Displays [MANUFACTURER] (name of the device manufacturer), [SERIAL NO.] (serial number of the device) and [MODEL NAME] (model name of the device).

**SHOOT:** Displays [SHOOTER] (name of the person who shot the video), [START DATE] (start date of shooting), [END DATE] (end date of shooting), and [LOCATION] ALTITUDE/LONGITUDE/LATITUDE/SOURCE/PLACE NAME (altitude, longitude, latitude, and source of the information and name of the location).

**SCENARIO:** Displays [PROGRAM NAME], [SCENE NO], and [TAKE NO].

**NEWS:** Displays [REPORTER] (name of the reporter), [PURPOSE] (purpose of shooting), and [OBJECT] (object of shooting).

**MEMO\*2:** Displays [NO.] (the number of the text memo), [OFFSET] (location of the frame with added text memo in relation to the beginning of the clip), [PERSON] (person who recorded the text memo added to the clip), and [TEXT] (contents of the text memo).

**THUMBNAIL:** Displays the location of the frame (frame offset) and the size (height and width) of the image selected as the thumbnail image.

\*1 The USER CLIP NAME recording method is selectable. For details, refer to [Selecting the USER CLIP NAME recording method] (page 139).

\*2 Be sure to enter [TEXT] when entering MEMO. It is not possible to record only [PERSON] or [OFFSET].

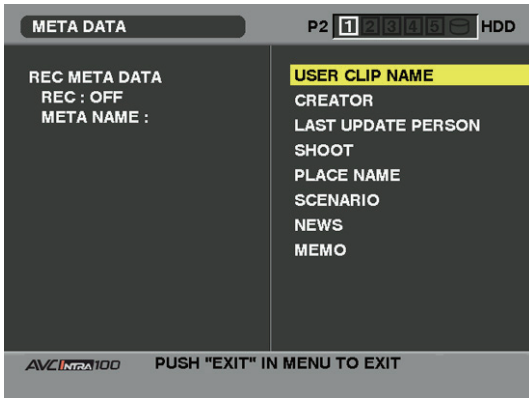
### ◆ Note

This unit only displays printable ASCII characters.

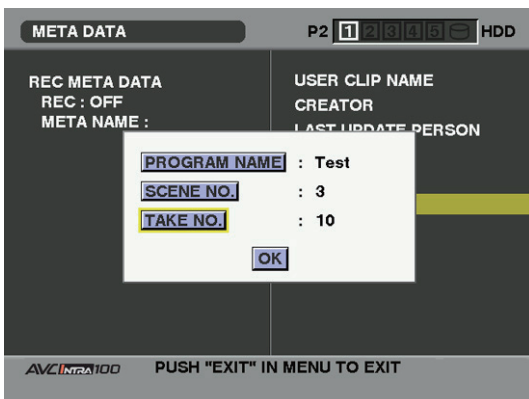
## Checking and modifying read metadata

The unit allows you to check details of metadata read from SD memory cards.

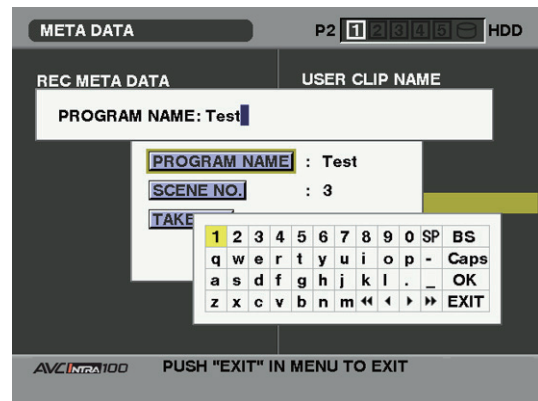
- 1 Press the THUMBNAIL button.  
The thumbnail screen appears on the LCD monitor.
- 2 Press the THUMBNAIL MENU button to select META DATA → PROPERTY from the thumbnail menu. Then, the screen like this is displayed:



- 3 Use the cursor buttons to move the pointer to the item you wish to check, then press the SET button.



- 4 While viewing the settings for the metadata, use the cursor buttons to move the pointer to the desired option. Then, press the SET button. A soft keyboard screen is displayed, allowing you to modify the setting.



To set whether or not the uploaded metadata is recorded

Set "ON"/"OFF" in META DATA → RECORD from the thumbnail menu. The factory setting is "OFF".

## Selecting the USER CLIP NAME recording method

Select META DATA → USER CLIP NAME from the thumbnail menu to select the recording method. Two options are available: TYPE1 and TYPE2.

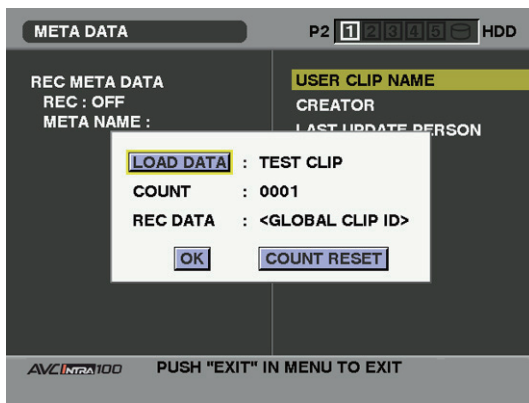
- TYPE1 (Factory setting)

	USER CLIP NAME to be recorded
If clip metadata has been read in	Uploaded data
If no clip metadata has been read in or if the setting for recording clip metadata has been turned off	Same as GLOBAL CLIP ID (UMID data)

- TYPE2

	USER CLIP NAME to be recorded
If clip metadata has been read in	Uploaded data + COUNT value*
If no clip metadata has been read in or if the setting for recording clip metadata has been turned off	Same as CLIP NAME

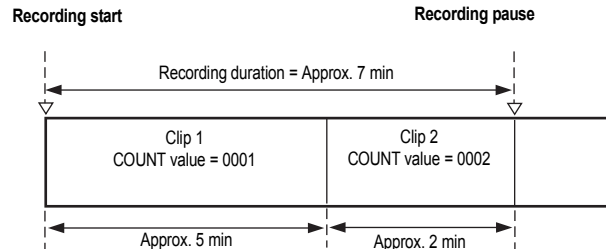
- \* The COUNT value is indicated as a four-digit number. The COUNT value is incremented each time a new clip is captured if clip metadata has been read in and TYPE2 has been selected as the recording method. The COUNT value can be reset using the following procedure.  
Select META DATA → PROPERTY from the thumbnail menu, then select USER CLIP NAME to display the menu shown below. Select "COUNT RESET" with the cursor and press the SET button to reset the COUNT value to 1.



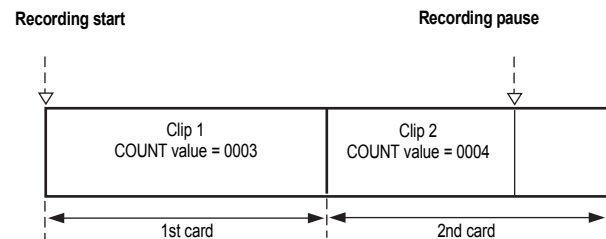
## ◆ Note

When a P2 card with a memory capacity of 8 GB or more is used in unit and a one-time continuous recording exceeds the prescribed duration (DVCPRO HD and the AVC-Intra100: about 5 minutes; AVC-Intra50: about 10 minutes) or when a one-time recording extends over more than one P2 card, the recording concerned will automatically be undertaken as a separate clip. At this time, each clip will be provided with its own COUNT value.

### Example of recording (DVCPRO HD) a clip on one P2 card:



### Example of recording a clip on two P2 cards:



If the clip thumbnails are displayed as shown in the example above or their properties are indicated using a P2 device, the thumbnail and COUNT value of clip 1 will be displayed.

## Clear the uploaded metadata

Select META DATA → INITIALIZE from the thumbnail menu, and press the SET button. Select YES when the confirmation screen is displayed.

## ◆ Notes

- Japanese or Chinese characters indicated in English or other characters that cannot be indicated in English will not display properly; they will be indicated as \*.
- The letters which can be input with the unit are only the alphanumeric. The unit cannot input Japanese and Chinese.

# Setting of Proxy (optional)

By attaching the video encoder card (AJ-YAX800G, optional) either to the optional slot or slot 5, it is possible to specify the proxy recording setting.

The video encoder card is not recognized when inserted if the power for the unit is turned on. Insert the video encoder card after turning off the power for the unit.

Select OPERATION → DEVICE SETUP → PROXY from the thumbnail menu to specify the setting.

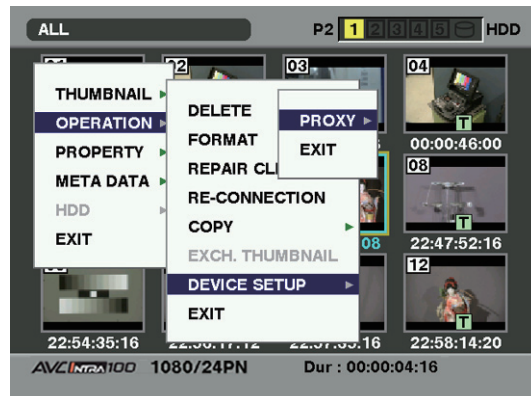
For the method of installation and the settings of the video encoder card, refer to the operation manual of the video encoder card.

## ◆ Notes

- To use the proxy function in 24PN (Native) mode, the FPGA version of the video encoder card firmware must be updated to [B102] or higher. For the method to confirm the FPGA version of the video encoder card firmware, refer to [Video Encoder Card Status Display (optional)] (page 146). For instructions on updating, refer to the P2 support page on the following website.

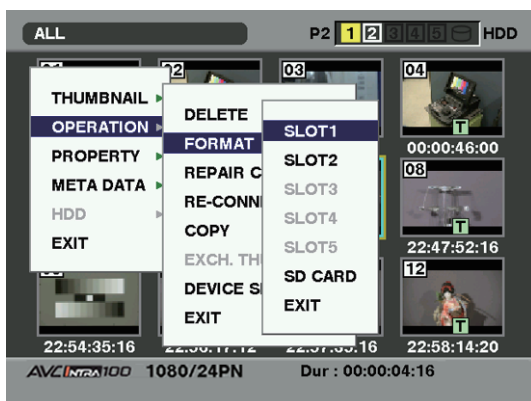
<http://pro-av.panasonic.net/>

- When “PROXY CARD ERROR” is indicated in the viewfinder, either check the video encoder card or set the unit so that proxy recording is not performed.

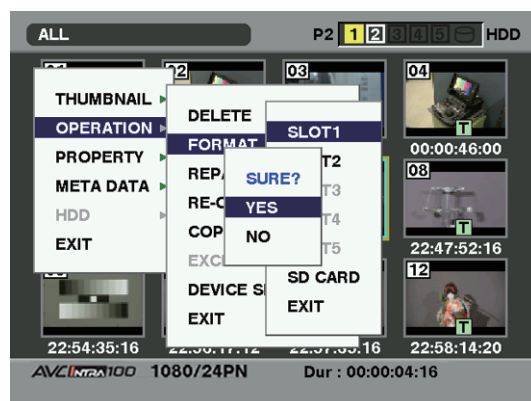


# Formatting a P2 Card

- Press the THUMBNAIL button.  
The thumbnail screen appears on the LCD monitor.
- Press the THUMBNAIL MENU button and select OPERATION → FORMAT from the thumbnail menu.  
The following screen appears. Select the slot number for the P2 card you want to format, then press the SET button.  
Select EXIT if formatting is not required.



- The following screen appears. Use the cursor buttons and the SET button to select YES.

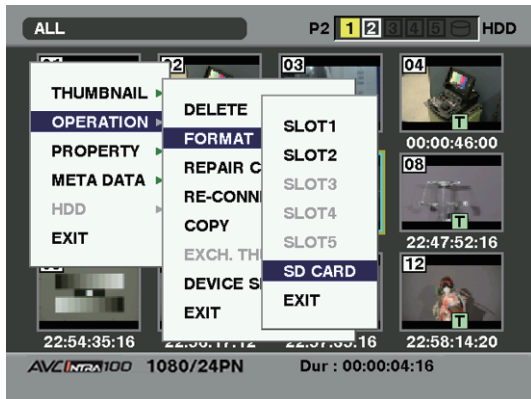


- The selected P2 card is formatted.

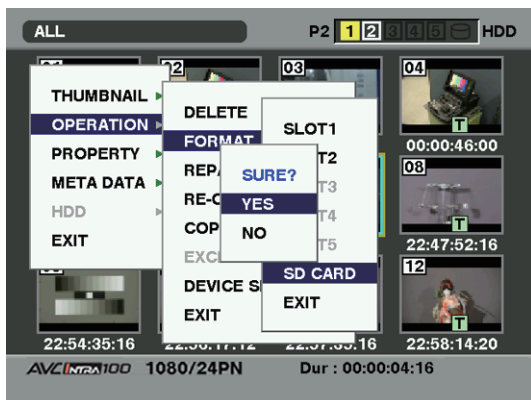
# Formatting SD memory cards

SD memory cards can also be formatted from the thumbnail screen. With an SD memory card inserted into the unit, perform the following operation:

- 1 Press the THUMBNAIL button.  
The thumbnail screen appears on the LCD monitor.
- 2 Press the THUMBNAIL MENU button and select OPERATION → FORMAT from the thumbnail menu.  
The following screen appears. Select “SD CARD”, then press the SET button.  
Select “EXIT” if formatting is not required.



- 3 The following screen appears. Use the cursor buttons and the SET button to select YES.



- 4 The SD memory card is formatted.

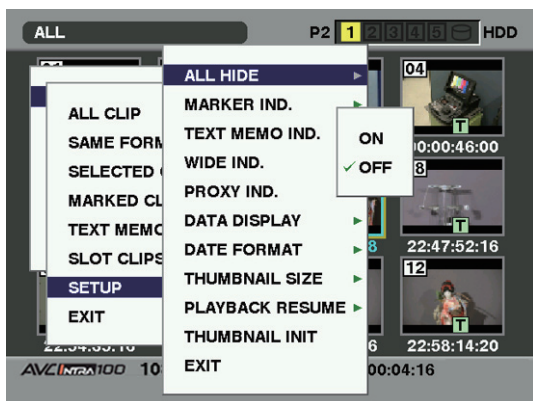
## ◆ Note

SD memory cards can also be formatted from the menu screen. For more information, see [Handling SD memory cards] (page 92).

# Setting the Thumbnail Display Mode

The thumbnail display mode can be customized to suit your preferences.

- 1 Press the THUMBNAIL button.  
The thumbnail screen appears on the LCD monitor.
- 2 Press the THUMBNAIL MENU button and select THUMBNAIL → SETUP from the thumbnail menu.  
The following screen appears.



## ALL HIDE:

- ON:** All indicators are not displayed.  
**OFF:** Indication/No indication will be set depending on the following menu. The factory settings are as follows.

## MARKER IND.:

Switches the shot mark marker between indication and no indication (ON/OFF). The factory setting is ON (indication).

## TEXT MEMO IND.:

Switches the text memo marker between indication and no indication (ON/OFF). The factory setting is ON (indication).

## WIDE IND.:

Switches the wide marker between indication and no indication (ON/OFF). The factory setting is ON (indication).

## PROXY IND.:

Switches the proxy marker between indication and no indication (ON/OFF). The factory setting is ON (indication).

## DATA DISPLAY:

The time display field of the clip offers a choice of Time Code (TC), User Bits (UB), Shooting Time (TIME), Shooting Date (DATE), Shooting Date and Time (DATE/TIME) or USER CLIP NAME. The factory setting is Time Code.

## DATE FORMAT:

You can specify the display order for the shooting date as either Year/Month/Day (Y-M-D), Month/Day/Year (M-D-Y) or Day/Month/Year (D-M-Y).

The factory setting is Month/Day/Year.

This setting is reflected in the recording date shown in the clip property and the shooting date shown when DATE is selected under the item DATA DISPLAY.

## THUMBNAIL SIZE:

For the size of thumbnails displayed on one screen, either LARGE (3×2 thumbnails displayed) or NORMAL (4×3 thumbnails displayed) can be selected. The factory default value is NORMAL.

## PLAYBACK RESUME:

Selecting a position to restart playback after stopping playback on the thumbnails screen using the STOP button.

- ON:** Playback starts from the stop position.  
**OFF:** Playback starts from the beginning of the clip indicated by the pointer.

Note that if the pointer is moved after stopping playback, the playback will restart from the beginning of the clip indicated by the pointer regardless of this setting. Also, attempting to playback from the end of all the available clips will cause the screen to flash momentarily, indicating that there are no more clips which can be played back.

## THUMBNAIL INIT:

Return the above thumbnail display settings to default. Move the cursor to this option, and press the SET button. Select YES when the confirmation screen is displayed.

## EXIT:

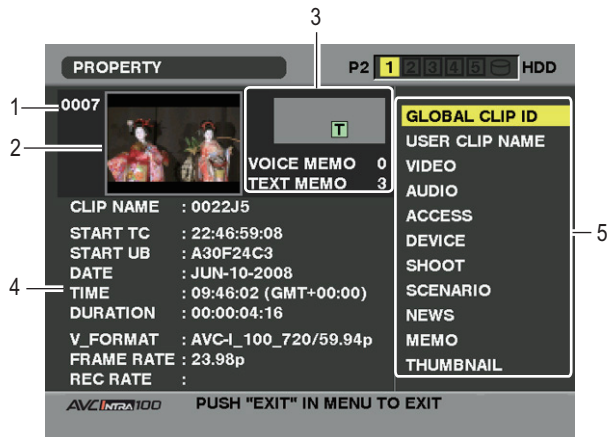
Returns to the previous menu.

# Properties

The clip's properties and the P2 card's status are displayed.  
It is possible to edit and rewrite recorded clip metadata while clip properties are displayed.

## Clip Property

From the thumbnail menu, select PROPERTY → CLIP PROPERTY. The following screen appears.



### 1. Clip Number

### 2. Thumbnail

### 3. Clip Information

Indicates the indicators added to the clip and the number of text and voice memos added to the clip. The **T** mark appears if the clip is recorded on a write-protected P2 card.

#### ◆ Note

The unit is not capable of recording or playing back voice memos.

### 4. Clip Information

Displays detailed information about the clip.

#### CLIP NAME:

Display clip names.

#### START TC:

The time code value at the start of the recording.

#### START UB:

The user bit value at the start of the recording.

#### DATE:

The date of the recording.

#### TIME:

The time at the start of the recording.

#### DURATION:

The time length of the clip.

#### V\_FORMAT:

The recording format for the clip.

#### FRAME RATE:

The frame rate for the playback.

#### REC RATE:

The recording frame rate is displayed. (Only displayed for clips recorded using native recording with the VFR function.)

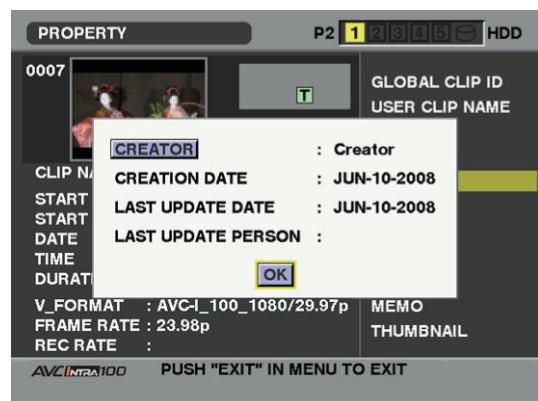
### 5. Clip Meta Data

Displays more detailed data about the clip. Use the cursor buttons to move the pointer, and press the SET button to check the detailed content. For more information on displayed metadata, see [Setting of Clip Meta Data] (page 137).

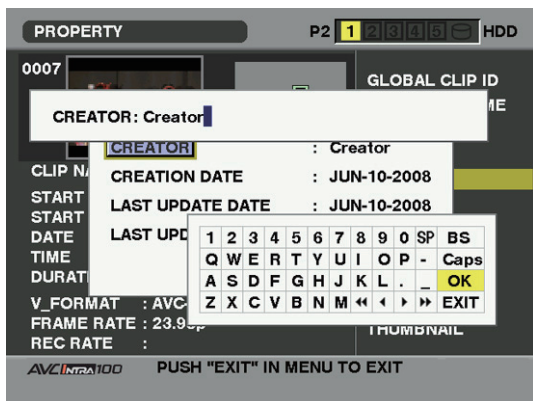
## Modification of recorded clip metadata

1 Display the window for detailed clip metadata that you intend to modify in the clip properties window.

2 Place the cursor on the item to be modified using the cursor button. The metadata that can be modified are shown like [CREATOR] in the following figure.



- 3** Press the SET button.  
The input window (soft keyboard) for modifying metadata is displayed. Use the keyboard to modify the metadata.



The keyboard operation is the same as [Checking and modifying read metadata] (page 138).

- 4** Press OK on the keyboard to write the modified metadata on the clip and return to the metadata window.

#### ◆ Notes

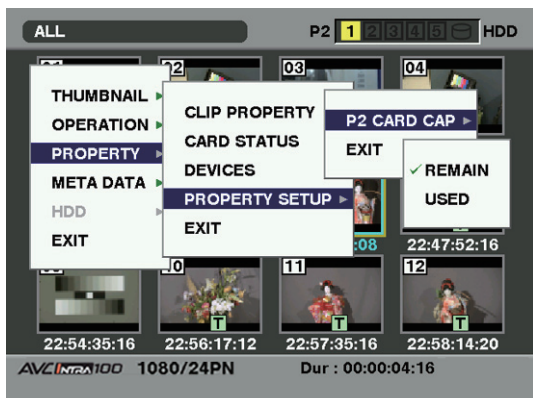
- Deleting only the respective items of LOCATION (recording location data) in SHOOT is not possible. By setting ALTITUDE to empty, other LONGITUDE/LATITUDE items are collectively deleted.
- The metadata for a clip with the **!** incomplete clip indicator cannot be modified. For the clips recorded on multiple P2 cards, modify the metadata while all P2 cards are inserted.
- Any MEMO with 100 characters or more cannot be modified.

## P2 Card Status Display

### P2 Card Status Display Settings

Select PROPERTY → CARD STATUS from the thumbnail menu to set the desired indication mode (remaining free space or used memory capacity) for the P2 card status display.

- 1** Press the THUMBNAIL button.  
The thumbnail screen appears on the LCD monitor.
- 2** Press the THUMBNAIL MENU button and select PROPERTY → PROPERTY SETUP → P2 CARD CAP from the thumbnail menu.  
The following screen appears. Select the P2 card status display settings from the P2 CARD CAP menu option.



#### REMAIN:

Show remaining free space on the P2 card as the P2 card status display. (Factory setting)

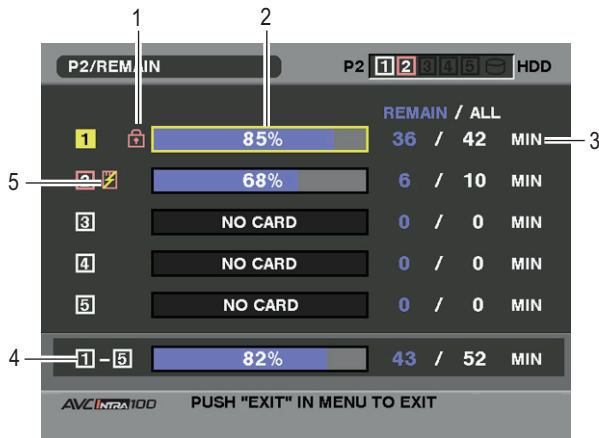
#### USED:

Show used memory capacity on the P2 card as the P2 card status display.



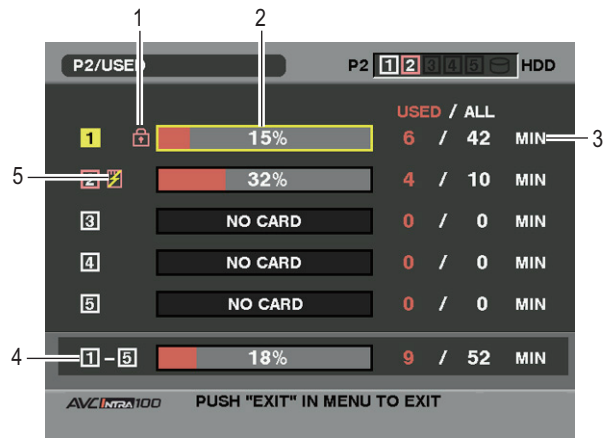
From the thumbnail menu, select PROPERTY → CARD STATUS. The following screen appears.

When “REMAIN” is selected:



1. **Write-protect Mark**  
The mark appears if the P2 card is write-protected.
2. **P2 Card Status (remaining free space)**  
The remaining memory capacity of the P2 card is indicated by a bar graph and percentage. The bar graph indicator moves to the left as the remaining free space decreases.  
The following indications may appear, depending on the card status:  
**FORMAT ERROR!:**  
An unformatted P2 card is inserted.  
**NOT SUPPORTED!:**  
An unsupported card is inserted in the camera.  
**NO CARD!:**  
P2 cards are not inserted.  
Use the cursor button to place the cursor on the P2 card for data you want to access and press the SET button to display detailed information about the P2 card to check individual information such as the serial number and the user ID.
3. **P2 Card Remaining Capacity/Total Capacity**  
Displays the P2 card remaining capacity and total capacity in minutes. The total of the remaining memory capacity for each P2 card that is displayed may not match the actual total remaining memory capacity for the P2 cards because only the figure in minute is displayed.  
Note that the indicated capacity will vary according to the frame rate in native recording with VFR operation.
4. **Total remaining free space for the slot**  
Displays the total remaining free space for all 5 slots. Please note that the remaining capacity of a write-protected P2 card is not included in the total remaining capacity.
5. **Warning symbol**  
When the following P2 card is detected, the symbol is displayed.  
**RUN DOWN CARD:**  
The maximum number of overwrites on the P2 card has been exceeded.  
**DIR ENTRY NG CARD:**  
The directory structure on the P2 card is not supported.  
The warning can be confirmed on the P2 card detailed information indication in [2. P2 Card Status (remaining free space)].

When “USED” is selected:



1. **Write-protect Mark**  
The mark appears if the P2 card is write-protected.
2. **P2 Card Status (used memory capacity)**  
The used memory capacity of the P2 card is indicated by a bar graph and a percentage figure. The bar graph indicator moves to the right as the used memory capacity increases.  
The following indications may appear, depending on the card status:  
**FORMAT ERROR!:**  
An unformatted P2 card is inserted.  
**NOT SUPPORTED!:**  
An unsupported card is inserted in the camera.  
**NO CARD!:**  
P2 cards are not inserted.  
Use the cursor button to place the cursor on the P2 card for data you want to access and press the SET button to display detailed information about the P2 card to check individual information such as the serial number and the user ID.
3. **P2 Card used memory capacity/Total Capacity**  
Displays the used memory capacity on a P2 card and the total capacity, in minutes. Because fractions are truncated, the figure shown for used memory capacity on a P2 card may differ from the figure for total capacity. The used memory capacity of a write-protected P2 card is displayed as 100%.  
Note that the indicated capacity will vary according to the frame rate in native recording with VFR operation.
4. **Total used memory capacity for all slots**  
Displays the total used memory capacity for all 5 slots.
5. **Warning symbol**  
When the following P2 card is detected, the symbol is displayed.  
**RUN DOWN CARD:**  
The maximum number of overwrites on the P2 card has been exceeded.  
**DIR ENTRY NG CARD:**  
The directory structure on the P2 card is not supported.  
The warning can be confirmed on the P2 card detailed information indication in [2. P2 Card Status (used memory capacity)].

## SD memory card Status Display

The status display enables a confirmation of the SD memory card formatted condition, available memory capacity etc.

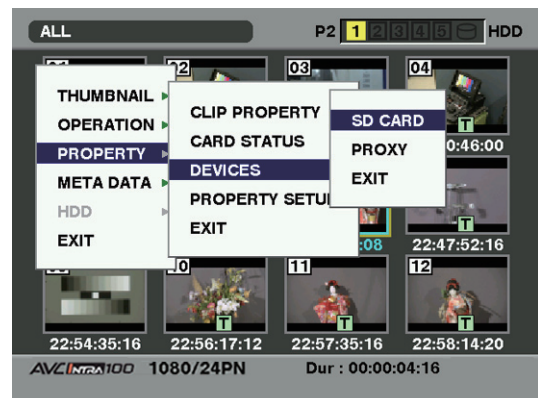
From the thumbnail menu, select PROPERTY → DEVICES → SD CARD.

If the format is compatible with SD standards, the message “SD STANDARD: SUPPORTED” is displayed.

If the format is not compatible with SD standards, the message “SD STANDARD: NOT SUPPORTED” is displayed. If this is the case, writing or reading will not be successful. Format the card with the unit. For more information on formatting SD memory cards, see [Formatting SD memory cards] (page 141).

### ◆ Note

The indicated remaining memory capacity on the SD memory card (PROXY REM) can be an index of remaining memory capacity for the Proxy but may differ from the actual remaining capacity. For SD or SDHC cards with Class indications, the recording time may be reduced significantly compared with the actual capacity when images of short recording time are recorded repeatedly. If the remaining memory capacity exceeds 999 min, “999 min” is displayed. The remaining capacity is displayed only when set to record the Proxy record on the SD memory card. For the setting method, refer to the operation manual of the video encoder card (AJ-YAX800G, optional).



## Video Encoder Card Status Display (optional)

Attaching the video encoder card (AJ-YAX800G, optional), select PROPERTY → DEVICES → PROXY from the thumbnail menu.

The slot in which the video encoder card is inserted, and version information is displayed.

# Connection with external device

## Connection with external devices using the USB 2.0 port

### Connection with a PC in the USB DEVICE mode

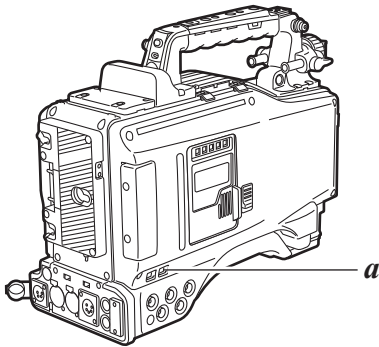
By connecting the unit with an external PC using USB 2.0, the P2 card inserted to the unit can be used as a mass storage device.

Procedures for establishing a connection with a PC

**1** Connect the USB cable to the USB 2.0 port.

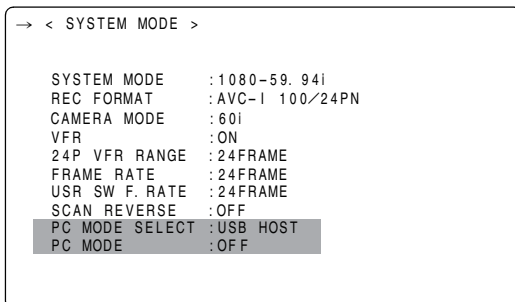
#### ◆ Notes

- The USB 2.0 cable is not included with the unit. Please use a commercially available USB 2.0 cable (with shield).
- Although the unit supports USB cables up to 5 meters long, cables up to 3-meters long are recommended.



a. USB 2.0 port (DEVICE)

**2** Navigate the menu to open the <SYSTEM MODE> screen on the SYSTEM SETTING page. Then, set the PC MODE SELECT menu option to “USB DEV.” and the PC MODE option to “ON”.



#### ◆ Note

The function of the menu option PC MODE may be assigned to a desired user button by using any one of the menu options USER MAIN SW, USER1 SW, USER2 SW, MARKER SEL or TEXT MEMO SW. These options can be found in the <USER SW> screen on the CAM OPERATION page.

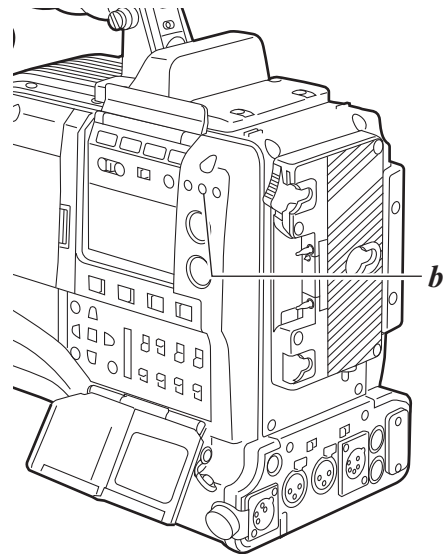
When you establish the USB connection for the first time, install the supplied P2 software on the PC. Refer to the Installation Manual for the details.

#### ◆ Notes

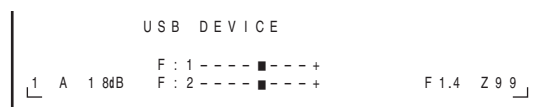
- A USB driver must be installed on the PC.
- The unit is only applicable to USB 2.0. Use a PC that supports USB 2.0.
- Only one unit at a time must be connected to the PC via USB.
- The P2 card must not be removed when it is connected via USB.
- While a USB connection is established, the P2 card's access LED should not be lit except when access is being carried out.
- When a USB device is active, recording, playback, or navigation through clip thumbnails is disabled.

During a USB connection, the USB LED on the side panel stays illuminated. Also, “USB DEVICE” is displayed in the system information/warning area in the viewfinder.

When the connection is not correctly established, both of these indications blink.



b. USB LED



**3** There are two ways to terminate the USB mode, as follows:

- Turn the POWER switch of the unit [OFF].
- Set the PC MODE item to “OFF” from the menu operations.

## USB HOST mode

The unit can be connected to a hard disk drive that supports USB 2.0 to store data from cards on it, view thumbnails for stored clips, and write data back to P2 cards.

## Switching to the USB HOST mode

**1** By navigating the menu, set the PC MODE SELECT menu option on the <SYSTEM MODE> screen on the SYSTEM SETTING page to “USB HOST”, then the PC MODE option to “ON”. This will place the unit in USB HOST mode.

- When the unit is in USB HOST mode, the viewfinder indicates “USB HOST” and the USB LED on the side panel stays illuminated. If the hard disk drive is not properly connected, then the LED blinks.
- When a user button is assigned the PC MODE on/off switching capability, you can press that user button to switch between the normal and USB HOST modes. For information about how to assign functions to the user buttons, see [Assigning Functions to User Buttons] (page 59).

**2** Press the THUMBNAIL button to go to the thumbnail screen. Check to see that the screen indicates “USB HOST” in the lower right corner. When a hard disk drive is connected, the HDD indication in the upper right corner stays illuminated. However, if this indicator illuminates red, it means that the hard disk drive cannot be copied. Confirm the hard disk drive type.

For information about the HDD indication, see [Thumbnail Screen] (page 127).



a. USB HOST display

### ◆ Note

In USB HOST mode, clips on P2 cards can be played back but video from the camera or an external device cannot be recorded.

Clips written to a hard disk must be written back to a P2 card before it can be played back. For information about how to write clips back to P2 cards, see [Writing data back to P2 cards] (page 151).

To return to the normal mode from the USB HOST mode, set PC MODE to “OFF” or press a user button which has been assigned the PC MODE on/off function while the thumbnail screen is closed.

## Using the USB HOST mode

### Usable hard disk drives

- Hard disk drives connectable via USB 2.0
- P2 STORE (AJ-PCS060G, optional)

### ◆ Notes

- While the USB HOST mode supports USB bus power (5 V, 0.5 A), some hard disk drives may not activate. If this is the case, power must be supplied in a different way.
- Do not connect multiple hard disk drives through a hub even if the power is turned off. Also, avoid connecting other devices together with a hard disk drive through a hub.
- The unit does not support a hard disk drive of 2 TB or more.

## Viewing hard disk drive information

You can view the information on the hard disk drive connected via USB 2.0 with the following steps.

- 1 Switch the mode to USB HOST. For more information, see [Switching to the USB HOST mode] (page 148).
- 2 Connect the hard disk drive to the unit via USB 2.0.
- 3 Press the THUMBNAIL button to display the thumbnail screen.
- 4 Press the THUMBNAIL MENU button and select HDD → EXPLORE from the thumbnail menu. The screen provides the information about the hard disk drive.

### For TYPE S or P2 STORE

1 PARTITION : TYPE S  
 2 VENDOR : Panasonic  
 3 MODEL : XX0603H  
 4 SIZE : 93.1 [GB]  
 5 USED : 22.3 [GB]  
 6 REMAIN : 70.8 [GB]

EXIT button ↑ ↓ Press the SET button.

10 SERIAL : AZF06K0081 NUMBER : 1 PARTITION : TYPE S  
 11 DATE : 2008/JUN/10 TIME : 19:52:51  
 12 MODEL : AJ-P2C016RG VERIFY : ON/FINISHED  
 NAME : PART-1

AVC Intra100 1080/24PN Dur : 00:00:05:08 USB HOST

### For the FAT

1 PARTITION : FAT  
 2 VENDOR : Panasonic  
 3 MODEL : XX0603H  
 4 SIZE : 55.9 [GB]  
 USED : - [GB]  
 REMAIN : - [GB]

AVC Intra100 PUSH "EXIT" IN MENU TO EXIT USB HOST

## 1. PARTITION

This section indicates the type of the hard disk drive. The available functions depend on the type of hard disk drive.

HDD type	Feature	Available functions
TYPE S	A special format that allows high-speed writing and writing back on a card-by-card basis. A drive formatted with the unit uses this format.	Thumbnail viewing, writing and writing back on a card basis, writing back on a clip basis, and formatting
P2STORE	P2 STORE (AJ-PCS060G). No writing can be performed.	Thumbnail viewing, writing back on a card basis, and writing back on a clip basis
FAT	For a hard disk drive with the first primary partition formatted in FAT16 or FAT32, as seen on PC, etc., which requires a CONTENTS directory at its root.	Thumbnail viewing, reading on a clip basis, and formatting * Once formatted, the hard disk drive can be treated as a TYPE S HDD.
OTHER	Hard disk drives not described above. * They are hard disk drives that have no CONTENTS directory or use the NTFS and any other file system instead of FAT16 or FAT32.	Formatting * Once formatted, they can be treated as a TYPE S HDD.

## 2. VENDOR

This section indicates the vendor for the hard disk drive.

## 3. MODEL

This section indicates the model of the hard disk drive.

## 4. SIZE

This section indicates the total storage on the hard disk drive.

## 5. USED

This section indicates the used space on the hard disk drive (in GB) and the number of P2 cards in use.

## 6. REMAIN

This section indicates the remaining free space on the hard disk drive in GB.

## 7. NO.

This section indicates the partition number (one P2 card is used as a unit) on the hard disk drive.

### ◆ Note

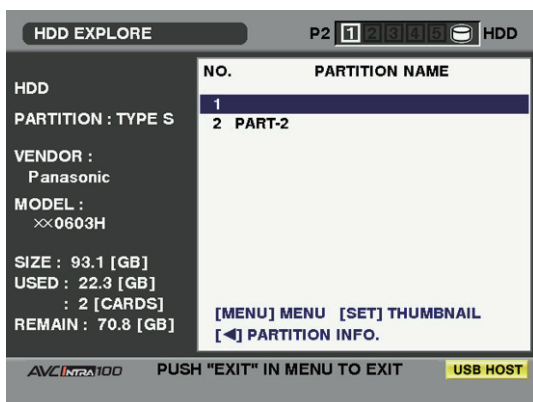
The screen indicates up to 10 partitions. When the number of partitions exceeds 10, scroll down the indication with the cursor button (▽) to view the hidden partitions.

## 8. MODEL

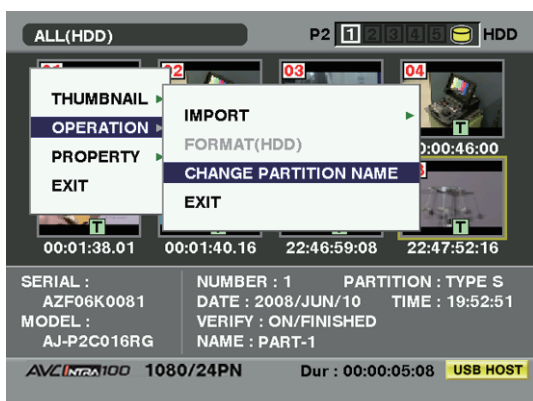
This section indicates the model of the P2 card that originally contained data on the partition.

### ◆ Note

Press the cursor button (▷) to switch to the PARTITION NAME. Press the [◀] button to return to the original model name display.



Enter the PARTITION NAME from the soft keyboard by selecting CHANGE PARTITION NAME in the OPERATION menu while the thumbnail of the hard disk drive is displayed. (Max. 20 characters)



## 9. DATE/TIME

This section indicates the date and time the data on the partition was recorded.

## 10. SERIAL

This section indicates the serial number of the P2 card that originally contained the data on the partition.

## 11. VERIFY

This section indicates the verification setting and results at the time the data on the partition was recorded.

### ON/FINISHED:

Verification was performed and the results agreed.

### ON/FAILED:

Verification was performed and the results did not agree.

### OFF:

No verification was performed.

- - -:

No verification information is available.

### ◆ Notes

- Even for a FAT-type hard disk drive, the 1001st or later clips are not shown.
- For a FAT-formatted hard disk drive, the information about only the first partition is shown.
- For a P2 STORE (AJ-PCS060G) that has an invalid partition, that partition information is shown in gray.

## 12. NAME

This section indicates the PARTITION NAME.

### Formatting a hard disk drive

- 1 Switch the mode to USB HOST.  
For more information, see [Switching to the USB HOST mode] (page 148).
- 2 Connect the hard disk drive via USB.
- 3 Press the THUMBNAIL button to display the thumbnail screen.
- 4 Press the THUMBNAIL MENU button and select HDD → EXPLORE from the thumbnail menu. The display provides a screen that shows the information about the hard disk drive.
- 5 From the menu, select OPERATION → FORMAT (HDD) and select YES using the cursor buttons and SET button. Then, the confirmation message is displayed again. Select YES.
- 6 The unit starts formatting the hard disk drive. Once formatted, the hard disk drive can be treated as a TYPE S HDD.

### ◆ Note

Formatting a hard disk drive erases all contents of it. Note that you cannot erase the contents of certain partitions by specifying them.

## Writing data on a hard disk drive

- 1** Switch the mode to USB HOST. For more information, see [Switching to the USB HOST mode] (page 148).
- 2** Connect a hard disk drive via USB.  
A hard disk drive that has not been formatted with the unit must be formatted as directed in [Formatting a hard disk drive] (page 150).
- 3** Insert a P2 card.
- 4** Press the THUMBNAIL button to display the thumbnail screen.
- 5** Press the THUMBNAIL MENU button and select HDD → EXPORT from the thumbnail menu. Then, specify the slot that contains the P2 card bearing the data to be written to the hard disk drive.
- 6** Select YES to start writing.  
When the data is being written, a progress bar is displayed. To discontinue writing, press the SET button and select YES on the cancel confirmation screen.

### ◆ Notes

- To disable verification at the time of writing, select HDD → SETUP from the thumbnail menu and set the option VERIFY to OFF. This speeds up writing without verifying data writing.
- Select ALL SLOT to write data collectively onto all P2 cards currently inserted in the unit to the hard disk drive.

- 7** When the writing is completed, the message “COPY COMPLETED!” is displayed.

### ◆ Notes

- For a TYPE S hard disk drive, data can be written on a card basis. The data on up to 23 P2 cards can be stored on the hard disk drive. The data set on each P2 card is recognized as a separate drive by the PC.
- If data on a P2 card that contains a defective clip must be written to a hard disk drive, then we recommend restoring that clip before copying the data.
- When the process is discontinued during verification, the data on the P2 card has been written to the hard disk drive.

## Writing data back to P2 cards

You can select clips on the hard disk drive to be written back to P2 cards.

- 1** Switch the mode to USB HOST. For more information, see [Switching to the USB HOST mode] (page 148).
- 2** Connect a hard disk drive via USB.
- 3** Insert the target P2 card in a slot.
- 4** Press the THUMBNAIL MENU button and select HDD → EXPLORE from the thumbnail menu. Move to the appropriate partition and select it with the SET button.
- 5** From among the thumbnails, select the clips to be written to the P2 card.
- 6** Press the THUMBNAIL MENU button and select OPERATION → IMPORT → SELECTED CLIPS. Then, specify the slot that contains the target P2 card.
- 7** Select YES to start writing data back to the P2 card.
- 8** When the writing is completed, the message “COPY COMPLETED!” is displayed.

### ◆ Notes

- When only selected files are written, no verification is performed.
- Import data in clip units from cards with a different model number as data cannot be imported by the partition between such cards.

For a TYPE S or P2 STORE hard disk drive, you can write data back to a P2 card with the same model number on a card basis.

The target P2 cards must be preformatted.

- 1** Switch the mode to USB HOST. For more information, see [Switching to the USB HOST mode] (page 148).
- 2** Connect a hard disk drive via USB.
- 3** Insert the target P2 cards in slots.
- 4** Press the THUMBNAIL MENU button and select HDD → EXPLORE. Then, move to the appropriate partition and select it with the SET button.
- 5** From the thumbnail menu, select OPERATION → IMPORT → ALL. Then, specify the slots that contain the empty target P2 cards.

**6** Select YES to start writing data to the cards.

**<For your information>**

To disable verification during writing, select HDD → SETUP from the thumbnail menu and set the option VERIFY to OFF. This speeds up writing without verifying data writing.

**7** When the writing is completed, the message "COPY COMPLETED!" is displayed.

---

**◆Note**

If a clip is written back to a P2 card different from the original card that contained that clip, then the clip may be incomplete. If this is the case, reconnect the clip. For more information, see [Reconnection of Incomplete Clips] (page 135).

---

**Direction for using a hard disk drive**

- A hard disk drive (including the P2 STORE (AJ-PCS060G)) must be used under the following conditions:
  - It must meet the operating requirements (e.g. temperature).
  - It must not be placed in an instable place or a place exposed to vibrations.
- Some hard disk drives do not operate properly.
- Some hard disk drives with the SATA (Serial ATA) interface or the PATA (Parallel ATA) interface connected by a USB conversion cable may not be recognized.
- When copying data, a hard disk drive must have sufficient free space.
- Do not remove the cable or the target P2 card or turn off the unit or hard disk drive during formatting or copying. Doing so requires the unit and the hard disk drive to be restarted.
- Since hard disk drives are high precision devices, there is a high possibility that they may become incapable of reading/writing data depending on the conditions of use.
- **Take note that we will not be liable for loss of data caused by failed hard disk drives or any other problem as well as direct or indirect damages resulting from the loss of data.**
- We do not guarantee that hard disk drives will operate properly with the unit or that the data on them will be properly retained if data copied to them from the unit has been replaced with other data using a PC.
- By using the drive mount converter distributed on the following URL, the hard disk drive can be mounted in the designated folder when connected.

When the drive letter used to denote the hard disc drive is the same as one already assigned to a network drive, the partition may not be displayed. When this problem occurs, use the drive mount converter to mount the hard disk drive in a designated folder. The partition will then be displayed.

<http://pro-av.panasonic.net/>



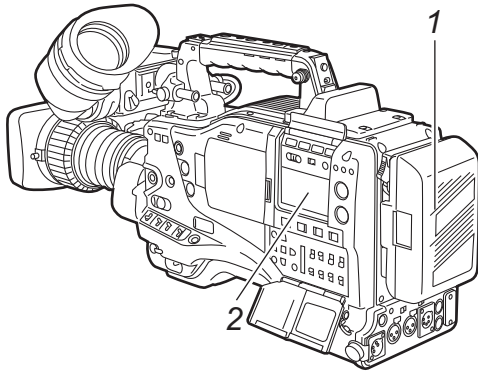
# Maintenance and Inspections

## Inspections Before Shooting

Make sure you check that the system is operating normally before embarking on a shoot. We recommend using a color video monitor to check the image.

### Preparing for Inspections

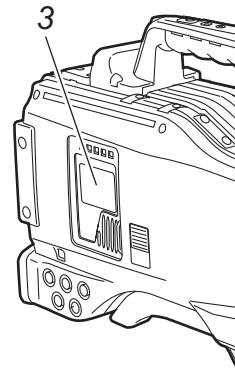
- 1 Mount a charged battery pack.
- 2 Turn the POWER switch [ON] and check that 5 or more "BATT" indication marks appear.
  - If fewer than 5 "BATT" indication marks appear, replace the battery with a fully-charged battery.



- 3 Insert a P2 card into the card slot and close the slide cover.

Confirm that the P2 card access LED for the inserted card slot lights up in orange. If P2 cards are inserted into multiple card slots, only the P2 card access LED for the first-inserted P2 card lights up in orange. Then, the other P2 card access LEDs light up in green when P2 cards are inserted.

If the access LED for the P2 card slot in which a P2 card is inserted keeps blinking in green, or if there is no display, recording is not possible on that particular P2 card.



### Inspecting the Camera Unit

- 1 Set the zoom to electric zoom mode and check the zoom operation.

Check that the image changes to telephoto and wide angle.
  - 2 Set the zoom to manual zoom mode and check the zoom operation.

Turn the manual zoom lever to check that the image changes to telephoto and wide angle.
  - 3 Set the iris to automatic adjustment mode and aim the lens at objects with different degrees of brightness, to check that the automatic iris adjustment operates normally.
  - 4 Set the iris to manual adjustment mode and turn the iris ring, to check the manual iris adjustment.
  - 5 While holding down the instant iris automatic adjustment button, aim the lens at objects with different degrees of brightness, to check that the instant iris automatic adjustment operates properly.
- ◆ **Note**
- There are also lens which have no instant iris automatic adjustment mode.
- 6 Return the iris to automatic adjustment mode and change the GAIN switch setting to [L], [M], and [H], to check the following items:
    - The iris is adjusted for objects with the same brightness according to the switch setting.
    - The gain value displayed on the viewfinder screen changes according to the switch setting.
  - 7 When a lens with an extender is mounted, set the extender to the operating position to check that the extender operates properly.

## Inspecting the Memory Recording Functions

Make sure you successively carry out the inspections from [1. Inspecting the P2 Card Recording] to [4. Inspecting the Earphone and Speaker].

### 1. Inspecting the P2 Card Recording

- 1** Check on the display inside the viewfinder that the remaining P2 card recording capacity is sufficient. Please refer to [P2 Card Remaining Free Space/ capacity Indication] (page 84) for information about P2 card remaining recording capacity.
- 2** Set the TCG switch to [R-RUN].
- 3** Set the DISPLAY switch to [TC].
- 4** Press the camera's REC START button to check the following items:
  - The P2 access LED blinks in orange.
  - The REC lamp inside the viewfinder lights up.
  - System warnings do not appear inside the viewfinder.
- 5** Press the camera's REC START button again. This step confirms that the P2 access LED is on and showing orange, and the REC lamp in the viewfinder is turned off.
- 6** Press the LIGHT button to check that the screen brightness in the display window increases.
- 7** Press the PLAY/PAUSE button to check that the clip that has just been shot is played back from the beginning. Check that recording and playback operate properly.
- 8** When multiple P2 cards are inserted into the P2 card slots, press the user button to which the SLOT SEL function has been assigned in order to select the P2 card used for recording.  
Repeat the operations in steps 4 to 5 and 7 to check that recording and playback operate properly.

### 2. Inspecting the Audio Level Automatic Adjustment

- 1** Set the AUDIO SELECT CH1 and CH2 switches to [AUTO].
- 2** Set the AUDIO IN CH1 and CH2 switches to [FRONT].
- 3** Aim the microphone connected to the MIC IN jack at an appropriate sound source. Then, check that the level displays for both CH1 and CH2 change according to the sound level.

### 3. Inspecting the Audio Level Manual Adjustment

- 1** Set the AUDIO IN CH1 and CH2 switches to [FRONT].
- 2** Set the AUDIO SELECT CH1 and CH2 switches to [MAN].
- 3** Turn the AUDIO LEVEL CH1 and CH2 controls. Check that the level display increases when the controls are turned to the right.

### 4. Inspecting the Earphone and Speaker

- 1** Turn the MONITOR control to check that the speaker volume changes.
- 2** Connect an earphone to the PHONES jack. Check that the speaker is turned off and the microphone sound can be heard from the earphone.
- 3** Turn the MONITOR control to check that the earphone volume changes.

### 5. Inspection for Using an External Microphone

- 1** Connect an external microphone to the AUDIO IN CH1 and CH2 connectors.
- 2** Set the AUDIO IN CH1 and CH2 switches to [REAR].
- 3** Set the LINE/MIC/+48V selector switches on the rear panel to [MIC] or [+48V], depending on the power supply type of the external microphone.  
**MIC:** For a microphone with internal power supply.  
**+48V:** For a microphone with external power supply.
- 4** Aim the microphone at a sound source. Then check that the audio level meter in the display window and the audio level display inside the viewfinder change according to the sound level.  
The channels can also be checked separately by connecting a single microphone to each channel.

## 6. Inspection of the clock, time code, and user bits

- 1 Set the user bits as required.  
Please refer to [Setting of the user bits] (page 65) for the setting procedures.
- 2 Set the time code.  
Please refer to [Setting the Time Code] (page 68) for the setting procedures.
- 3 Set the TCG switch to [R-RUN].
- 4 Press the REC START button.  
Check that the counter display number changes as recording progresses.
- 5 Press the REC START button again.  
Check that recording stops and the counter display number stops changing.

6 Set the TCG switch to [F-RUN].  
Check that the counter display number changes regardless of recording status.

7 Set the DISPLAY switch to [UB].  
Each time the HOLD button is pressed, make sure that the displayed value changes in the following sequence: VTCG → DATE → TIME → No display (time zone) → TCG; and also verify that the displayed value is correct. If DATE, TIME, or time zone is not correct, refer to [Setting the Internal Clock's Date and Time] (page 67) for guidance on setting the correct values.

### ◆ Note

Note that date and time data set for DATE, TIME, and time zone is recorded in clips, and affects the playback sequence, etc. at the time of thumbnail manipulations.

# Maintenance

## Cleaning Inside the Viewfinder

- Do not use thinner or other solvents to remove dirt.
- Wipe the lens with a commercially available lens cleaner.
- Do not wipe the mirror. If dirt or rubbish is sticking on the mirror, remove it with a commercially available air blower.

## Phenomenon Inherent to CCD Cameras

### Smears

Smears may appear when shooting an object with very high brightness.

This phenomenon becomes more obvious as the electronic shutter speed becomes faster.

### White defects

When the frame rate is set low during operation under VFR, tiny defects may be seen in the video. White defects become more noticeable in high-temperature operating conditions.

## Replacing the Backup Battery

The camera is shipped from the factory with a backup battery already mounted.

When the battery runs out, the "BACKUP BATT EMPTY" display appears on the viewfinder screen for 5 seconds after the POWER switch is turned [ON].

The internal clock stops operating when the battery runs out. Also, the TCG time code value returns to "00:00:00:00", and the time code backup is disabled. The battery must be replaced.

Please consult your distributor for replacement with a new battery (CR2032).

The backup battery is visible when the panel on the LCD monitor side is removed (right side when viewed from the front).

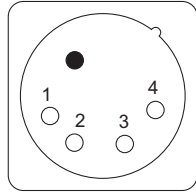
### ◆ Note

Please contact the store where you purchased the camera when replacing the battery.

# Connector Signals

DC IN	
1	GND
2	NC
3	NC
4	+12 V

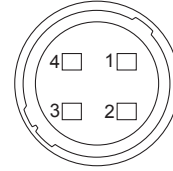
Panasonic part number K1AA104H0038  
 Maker part number HA16RX-4P (SW1)  
 (Hirose Denki)



DC OUT	
1	GND
2	R TALLY (Open collector)
3	REC START SW
4	+12 V OUT (Max. 1.5 A)

Panasonic part number K1AY104J0001  
 Maker part number HR10A-7R-4SC(73)  
 (Hirose Denki)

Connector at the cable side  
 Maker part number HR10A-7P-4P(73)  
 (Hirose Denki)

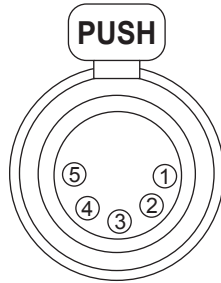


## ◆Note

Ensure that the polarities are used correctly for a power supply from an external source.

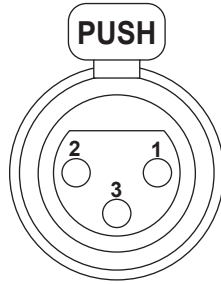
FRONT MIC IN	
1	GND
2	L CH IN (H)
3	L CH IN (C)
4	R CH IN (H)
5	R CH IN (C)

Panasonic part number K1AB105B0002  
 Maker part number NC5FBH  
 (NEUTRIK)



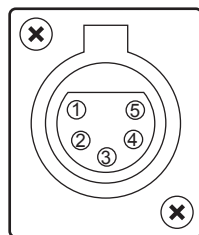
AUDIO IN	
1	GND
2	AUDIO IN (H)
3	AUDIO IN (C)

Panasonic part number K1AB103A0011  
 Maker part number HA16PRM-3SG  
 (Hirose Denki)



AUDIO OUT	
1	GND
2	L CH OUT (H)
3	L CH OUT (C)
4	R CH OUT (H)
5	R CH OUT (C)

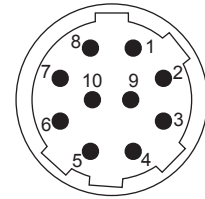
Panasonic part number K1AA105H0016  
 Maker part number HA16RD-5P(76)  
 (Hirose Denki)



REMOTE		
1	CAM DATA (H)	Data from the camera to the remote control (H)
2	CAM DATA (C)	Data from the camera to the remote control (C)
3	CAM CONT (H)	Control signals from the remote control to the camera (H)
4	CAM CONT (C)	Control signals from the remote control to the camera (C)
5	RC-ON	Identification signals of the remote control Low: ON
6	RC VIDEO OUT	Video signals output to the remote control
7	RC VIDEO GND	GND of the video signals to the remote control
8	NC	Not used
9	UNREG 12 V	DC +12 V power supply (AJ-RC10G: Max. 0.75 A)
10	GND	GND

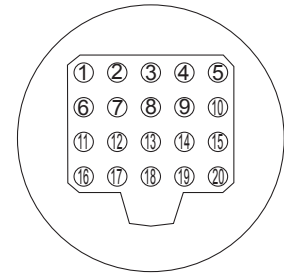
Panasonic part number K1AY110JA001  
 Maker part number HR10A-10R-10SC(71)  
 (Hirose Denki)

Connector at the cable side  
 Maker part number HR10A-10P-10P(73)  
 (Hirose Denki)

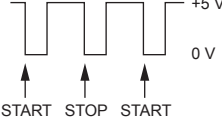


VF		
1	UNREG-12 V	DC +12 V power supply (AJ-HVF21G: About 0.35 A)
2	UNREG-12 V	DC +12 V power supply
3	A9.0 V	DC +9 V power supply (not used)
4	VF-PB-GND	GND for the viewfinder PB signals
5	VF-PR-GND	GND for the viewfinder PR signals
6	VF-Y	Viewfinder Y signals output
7	VF-Y-GND	GND for the viewfinder Y signals
8	VF-CLK	Serial data clock pulse signals
9	VF-WR	Pulse signals for reading serial-parallel conversion data
10	VF-DATA	Serial data signals for serial-parallel conversion
11	UNREG-GND	GND
12	ZEBRA-SW	On/off of the zebra signals
13	PEAKING	Control of the peaking (not used)
14	SPARE	Standby (not used)
15	VF-PR	Viewfinder PR signal output
16	VF-PB	Viewfinder PB signal output
17	MARKER-SW	On/off of the marker (not used)
18	FRONT-VR	FRONT AUDIO LEVEL adjustment (not used)
19	VR-GND	GND for the FRONT AUDIO LEVEL (not used)
20	UNREG-GND	GND

Panasonic part number K1AB120H0001  
 Maker part number HR12-14RA-20SC  
 (Hirose Denki)

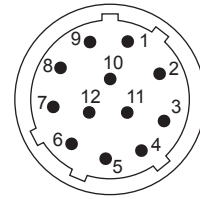


**◆Caution**  
 Total amount of current from the respective connectors for DC OUT, REMOTE, VF, and LENS should not exceed 2.5 A.

LENS		
1	RET-SW	On/off of the return video RETURN ON: GND RETURN OFF: OPEN
2	REC-START/ STOP	Control for recording start/stop 
3	GND	GND
4	IRIS-AUTO	On/off of the forced iris servo SERVO ON: +5 V±0.5 V SERVO OFF: OPEN
5	IRIS-CONT	Control output for the lens iris F2.8: -6.2 V, F16: +3.4 V, CLOSE: +2.5 V
6	UNREG-12 V	+12 V power supply for the lens (Max. 1.5 A)
7	IRIS-POSI	Iris position signals +3.4 V (F16) to +6.2 V (F2.8)
8	IRIS-G-MAX	IRIS REMOTE/LOCAL (AUTO) signals REMOTE: +5 V±0.5 V LOCAL (AUTO): GND
9	EXT-POSI	On/off of the built-in extender EXTENDER ON: GND EXTENDER OFF: OPEN
10	ZOOM-POSI	Zoom position signals
11	FOCUS-POSI	Focus position signal
12	SPARE	Standby (not used)

Panasonic part number K1AY112JA001

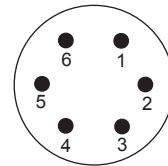
Maker part number HR10A-10R-12SC(71)  
(Hirose Denki)



GPS		
1	GPS TXA	Transmission data from the GPS unit to the camera
2	GPS RXA	Transmission data from the camera to the GPS unit
3	GPS VBAT	Backup power supply connector for the GPS unit (DC +3.3 V)
4	REC START SW	Control signals of recording start/stop
5	GPS VCC	Power supply connector for the GPS unit (DC +3.3 V)
6	GPS GND	GND

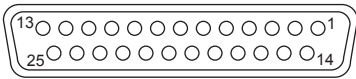
Panasonic part number K1AY106J0001

Maker part number HR10A-7R-6SC(73)  
(Hirose Denki)



Unislot Interface		
1	CH-1 SHIELD	GND
2	CH-1 HOT	Audio input from the wireless receiver: CH1 HOT
3	CH-1 COLD	Audio input from the wireless receiver: CH1 COLD
4	GND	GND
5	+12 V UNREG	Power supply to the wireless receiver
6	RX ON	Power supply remote output to the wireless receiver
7	RF WARN	RF warning input from the wireless receiver
8	RM5	Not used
9	RM4	Not used
10	SPARE 1	Not used
11	SPARE 2	Not used
12	EXT CLK	Not used
13	CLK SHIELD	Not used
14	CH-2 SHIELD	GND
15	CH-2 HOT	Audio input from the wireless receiver: CH2 HOT
16	CH-2 COLD	Audio input from the wireless receiver: CH2 COLD
17	+5.6 V	Power supply to the wireless receiver
18	VIDEO OUT	Not used
19	VIDEO RET	Not used
20	VIDEO EN	Not used
21	RM 1 (RM CLK)	Not used
22	RM 2 (RM DATA)	Not used
23	RM 3 (RM WR)	Not used
24	RM +5 V	Not used
25	RM GND	Not used

Panasonic part number K1GB25A00010  
 Maker part number HDBB-25S(05)  
 (Hirose Denki)



# Warning System

## Warning Description Tables

If a problem is detected immediately after the power is turned on, or during operation, this will be indicated by the WARNING lamp, lamps inside the viewfinder and a warning tone.

### ◆ Note

The WARNING lamp has the highest priority, followed by the tally lamp, and then the warning tone. When multiple errors occur simultaneously a higher priority indication will be triggered. The [WIRELESS-RF], however, may not be indicated, depending on the menu setting.

### 1. System Errors

<b>Display window indication</b>	The error code lights up.
<b>WARNING lamp</b>	Blinks 4 times per second.
<b>Tally lamp</b>	Blinks 4 times per second.
<b>Viewfinder</b>	The "SYSTEM ERROR" indication and the error code light up.
<b>Warning tone</b>	Beeps continuously.
<b>Warning description</b>	An error in the reference signal or the communication.
<b>Recording/playback operation</b>	The operation stops.
<b>Countermeasures</b>	Please confirm [Error Codes] (page 163) and consult your distributor.

### 2. Card removal error

<b>Display window indication</b>	Error code "E-30" blinks.
<b>WARNING lamp</b>	Blinks 4 times per second.
<b>Tally lamp</b>	Blinks 4 times per second.
<b>Viewfinder</b>	The "TURN POWER OFF" indicator lights up.
<b>Warning tone</b>	Continues to beep.
<b>Warning description</b>	The P2 card being accessed has been removed, resulting in an error in the internal memory of the unit.
<b>Recording/playback operation</b>	Cannot be performed.
<b>Countermeasures</b>	Turn off the power to the unit. If there is an error in a clip on the removed P2 card, repair the clip.

### 3. Battery Empty

<b>Display window indication</b>	All 7 bar indicators for battery remaining capacity start blinking.
<b>WARNING lamp</b>	Lights up.
<b>Tally lamp</b>	Blinks once per second.
<b>Viewfinder</b>	The BATT LED lights up.
<b>Warning tone</b>	Beeps continuously.
<b>Warning description</b>	The battery has run out.
<b>Recording/playback operation</b>	The operation stops.
<b>Countermeasures</b>	Replace the battery.

### 4. P2 Card Fully Recorded

<b>Display window indication</b>	All 7 bar indicators for remaining MEDIA capacity start blinking.
<b>WARNING lamp</b>	This lamp will illuminate continuously until an operation is made after recording.
<b>Tally lamp</b>	This lamp will flash 4 times every second until an operation is made after recording.
<b>Viewfinder</b>	The "END" indicator blinks. When a write protected P2 card has been inserted, the "WP" indicator lights up.
<b>Warning tone</b>	This tone will sound continuously until an operation is made after recording.
<b>Warning description</b>	The P2 cards are recorded to maximum capacity.
<b>Recording/playback operation</b>	The recording stops.
<b>Countermeasures</b>	Delete the clips in the P2 card or insert a new P2 card.

### 5. Image Sequence Error (24P, 30P, 25P)

<b>Display window indication</b>	"E-40" appears in the time code display field.
<b>WARNING lamp</b>	Blinks 4 times per second.
<b>Tally lamp</b>	Blinks 4 times per second while recording continues.
<b>Viewfinder</b>	The "REC WARNING" indicator lights up.
<b>Warning tone</b>	Beeps 4 times per second while recording continues.
<b>Warning description</b>	There are abnormal conditions in the image sequence of the 24P, 30P, or 25P mode.
<b>Recording/playback operation</b>	Images can be recorded and played back, but some frames may be dropped or the sequences of TC and UB may shift.
<b>Countermeasures</b>	Confirm the recording/playback operation after turning off the power supply once and then turning it on again. If the error is not corrected after executing this procedure, contact the dealer.



## 6. Recording Error

<b>Display window indication</b>	"00:00:00:11" appears in the time code display field. Even after recording is stopped, this display continues to blink until the next operation is performed.
<b>WARNING lamp</b>	Blinks 4 times per second while recording continues.
<b>Tally lamp</b>	Blinks 4 times per second while recording continues.
<b>Viewfinder</b>	The "REC WARNING" indicator lights up.
<b>Warning tone</b>	Beeps 4 times per second while recording continues.
<b>Warning description</b>	This indicates a failure either in the P2 card recording or the recording circuit. This is displayed when attempting to record clips where the total quantity exceeds the upper limit (1000 pieces) for a single P2 card.
<b>Recording/playback operation</b>	The recording may stop or continue.
<b>Countermeasures</b>	Confirm the recording/playback operation after turning off the power supply once and then turning it on again. If the recording cannot be performed normally, change the P2 card.

## 7. Low Wireless Signal Reception

<b>Display window indication</b>	No display.
<b>WARNING lamp</b>	Blinks 4 times per second (during pause and recording).
<b>Tally lamp</b>	Blinks 4 times per second while recording continues.
<b>Viewfinder</b>	The "WIRELESS-RF" indicator lights up while recording continues.
<b>Warning tone</b>	Beeps 4 times per second while recording continues.
<b>Warning description</b>	This error indicates poor wireless audio reception conditions.
<b>Recording/playback operation</b>	Continues to operate without receiving the wireless microphone signal.
<b>Countermeasures</b>	Check the microphone power supply and the reception status of the wireless receiver.

## 8. Battery Nearly Empty

<b>Display window indication</b>	One of the bars in the battery remaining indicator starts blinking.
<b>WARNING lamp</b>	Blinks once per second.
<b>Tally lamp</b>	Blinks once per second.
<b>Viewfinder</b>	The "BATT" LED blinks.
<b>Warning tone</b>	Beeps 4 times per second.
<b>Warning description</b>	The battery is about to run out.
<b>Recording/playback operation</b>	Continues to operate.
<b>Countermeasures</b>	Replace the battery as required.

## 9. P2 Card Nearly Full

<b>Display window indication</b>	One of the bars for remaining MEDIA capacity starts blinking.
<b>WARNING lamp</b>	Blinks once per second while recording continues.
<b>Tally lamp</b>	Blinks once per second while recording continues.
<b>Viewfinder</b>	The P2 card remaining capacity indicator blinks.
<b>Warning tone</b>	Beeps once per second while recording continues.
<b>Warning description</b>	The total remaining capacity of all the P2 cards is 2 minutes or less.
<b>Recording/playback operation</b>	Continues to operate.
<b>Countermeasures</b>	Replace the cards. If there is an empty card slot, insert a new card.

## 10. P2 Card Error

<b>Display window indication</b>	If the error occurs during recording, "00:00:00:11" appears in the time code display field. The indication continues to flash after recording is stopped and until the next operation is performed. There is no indication if the error occurs during playback.
<b>WARNING lamp</b>	If the error occurs during recording, the lamp flashes 4 times per second for a period of about 3 seconds after recording stops. The lamp does not light if the error occurs during playback.
<b>Tally lamp</b>	If the error occurs during recording, the lamp flashes 4 times per second for a period of about 3 seconds after recording stops. The lamp does not light if the error occurs during playback.
<b>Viewfinder</b>	A flashing "CARD ERR *" appears. In the actual indication the * is replaced by the slot number of the P2 card that triggered the error.
<b>Warning tone</b>	If the error occurs during recording, the tone sounds 4 times per second for a period of about 3 seconds after recording stops. The tone does not sound if the error occurs during playback.
<b>Warning description</b>	An error has occurred while recording data to or playing data from a P2 card.
<b>Recording/playback operation</b>	Stop recording or playback.
<b>Countermeasures</b>	Replace the affected P2 card.

## 11. FAN STOP

<b>Display window indication</b>	No display.
<b>WARNING lamp</b>	Blinks 4 times per second.
<b>Tally lamp</b>	No display.
<b>Viewfinder</b>	The "FAN STOP" indicator blinks while recording continues.
<b>Warning tone</b>	It does not sound.
<b>Warning description</b>	The fan is at rest because something is wrong with it.
<b>Recording/playback operation</b>	The unit continues to operate. However, when the unit operates with the fan stopped, then the temperature inside rises. While the unit continues to operate, clips may not be recorded or played back properly.
<b>Countermeasures</b>	Immediately stop using the unit and consult your distributor.

## 12. PROXY CARD ERROR

<b>Display window indication</b>	No display.
<b>WARNING lamp</b>	Flashes 4 times per second for a period of about 3 seconds.
<b>Tally lamp</b>	Flashes 4 times per second for a period of about 5 seconds.
<b>Viewfinder</b>	The "PROXY CARD ERROR" indicator light up.
<b>Warning tone</b>	It does not sound.
<b>Warning description</b>	Proxy recording stops because of failure on either the video encoder card or the stream.
<b>Recording/playback operation</b>	The unit continues to operate.
<b>Countermeasures</b>	Check the video encoder card or avoid use of proxy recording.

## Error Codes


The following error codes are displayed in the display window if an error occurs in the camera:  
Confirm the type of warning and refer to the details in the [Warning Description Tables] (page 160) for countermeasures.

Code No.	Description	Type of warnings
E-11	Video initialization error	1. System Errors
E-27	Recording control error	1. System Errors
E-30	P2 card removal error	2. Card removal error
E-34	LCD microcontroller error	1. System Errors
E-38	P2 streaming microcontroller error	1. System Errors
E-39	Abnormal initialization of the AVC-Intra codec	1. System Errors
E-3F	Microprocessor error in the camera control circuit	1. System Errors
E-40	Image sequence error (in case of 24P, 30P and 25P), GENLOCK error	5. Image Sequence Error (24P, 30P, 25P)
E-63	Something is wrong with the system control microprocessor.	1. System Errors
E-6F	Reference signal error.	1. System Errors
00:00:00:11	Recording error on a P2 card	6. Recording Error/10. P2 Card Error

## Card Warning Code

Code No.	Description	Recording	Indication in display window
E-70	The directory structure on the P2 card is not supported. ([DIR NG CARD (Slot No.)] is indicated on the viewfinder.)	Operation continues. However, back up data on the P2 card as soon as possible, and format the card before using it again.	A warning code blinks once every 2 seconds on the time code display section of the display window.
E-71	The maximum number of overwrites on the P2 card has been exceeded. ([RUN DOWN CARD (Slot No.)] is indicated on the viewfinder.)	Operation continues. However, recording or playback may not operate correctly. It is recommended that you replace the P2 card with another one.	

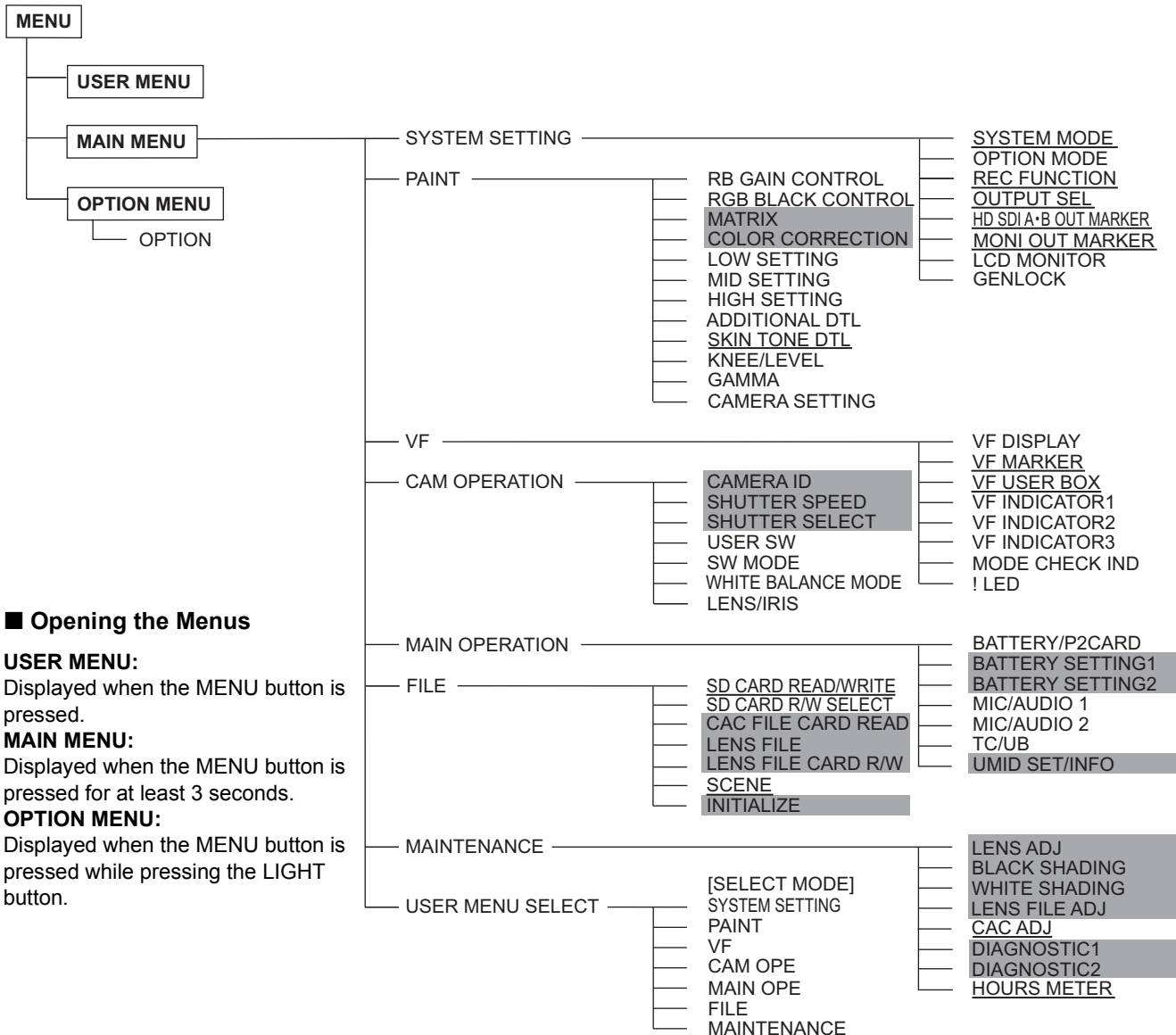
## Warning and Error Display for Thumbnail Operation and USB HOST MODE

Item	Message	Description	Measure
Thumbnails	CANNOT ACCESS!	Data cannot be accessed because it is corrupted or for other reasons.	Restore media and clips to normal state before access.
	WRITE PROTECTED!	The P2 or SD card is write protected.	Insert write-enabled media.
	CARD FULL!	The P2 or SD card is full.	Insert media with sufficient capacity.
	NO CARD!	No P2 or SD card is inserted.	Insert compatible media.
	NO FILE!	The designated file is not found.	Check the file.
	CANNOT COPY!	Images cannot be copied.	Check the conditions for copying.
	CANNOT DELETE !	Contents version mismatch prevents deletion.	Match devices and contents version.
	UNKNOWN CONTENTS FORMAT!	Warning displayed to indicate contents version mismatch.	Match devices and contents version.
	CANNOT FORMAT!	P2 card problem prevents formatting.	Check P2 card.
	CANNOT REPAIR!	Data cannot be repaired since content that cannot be repaired is selected.	Check selected content.
	CANNOT RE-CONNECT!	A clip that does not span multiple P2 cards cannot be reconnected.	Check selected content.
	INVALID VALUE!	Entered data was invalid.	Enter data in a valid range.
	UNKNOWN DATA!	The metadata character code is invalid.	Use UTF-8 for the metadata character code. Use the viewer to enter correct characters.
	CANNOT REPAIR IN SELECTION!	Some of the selected clip could not be repaired.	
	NO SD CARD!	No SD card is inserted.	Insert an SD card.
	NO COPY TO SAME CARD!	A clip cannot be copied to the card storing the original clip.	Copy the selected clip to a card that does not contain the original clip.
	SAME CLIP IS SELECTED!	The clip cannot be copied because a clip that has already been copied and the original clip have been selected.	Confirm the selected clip and release either the source clip or the destination clip and then execute the copy operation.
	USER CLIP NAME MODIFIED!	Characters in the clip name had to be deleted in adding the counter value.	The user clip name plus the counter value can only contain up to 100 bytes. Characters in the clip name are automatically deleted when the total exceeds 100 bytes.
	TOO MANY CLIPS!	Too many clips are selected.	Reduce the number of selected clips.
	LACK OF REC CAPACITY!	There is not enough recording capacity left on the card.	Insert a card with sufficient recording capacity.
CANNOT CHANGE!	Any thumbnails that cannot be produced on the AVC-Intra100 or AVC-Intra50 and displayed in gray cannot be changed at the text memo position.	Set SYSTEM MODE according to the clips.	
MISSING CLIP!	A shot mark will be added to the clips recorded on multiple P2 cards when all P2 cards are not inserted yet.	Insert all P2 cards with recorded clips, and confirm that the  incomplete clip indicators disappear, and then add shot marks.	
Soft keyboard	CANNOT CHANGE!	[PERSON] will be entered while the text memo is not available.	Enter [TEXT] before entering [PERSON].
	CANNOT SET! INVALID VALUE!	The entered value is incorrect.	Change the value.

Item	Message	Description	Measure
HDD (USB HOST mode)	HDD CAPACITY FULL!	Not enough space left on the hard disk.	There is not enough space on the connected hard disk. Use a new hard disk or formatted hard disk.
	TOO MANY PARTITIONS!	There are too many partitions.	Hard disks can handle up to 23 partitions. Use a new hard disk or formatted hard disk.
	HDD DISCONNECTED!	The unit is not connected to a hard disk.	Reconnect the USB cable. If the hard disk does not operate normally, turn it off and turn it back on again.
	CANNOT FORMAT!	The hard disk cannot be initialized.	Connect another hard disk drive.
	TOO MANY TARGETS!	Multiple devices are connected.	Disconnect devices, turn off the unit and turn it back on again.
	UNKNOWN DEVICE CONNECTED!	The connected DVD drive is not compatible.	Disconnect devices, turn off the unit and turn it back on again.
	CANNOT ACCESS TARGET!	An error occurred during hard disk access.	Check hard disk status and connection.
	CANNOT RECOGNIZE HDD!	The destination target cannot be properly recognized.	Reboot the hard disk or connect a different hard disk.
	CANNOT ACCESS CARD!	An error occurred during P2 card access.	Check P2 card.
	MISMATCH COMPONENT!	Copying is not possible since the model number of the destination card does not match that of the source card.	Use a P2 card with the same model number or import video in clip units.
	P2 CARD IS UNFORMATTED!	The P2 card is not formatted.	Use a formatted P2 card.
	CARD IS EMPTY! CANNOT COPY!	The P2 card selected for copying is empty.	Copying is not performed since the card is empty.
	VERIFICATION FAILED!	The compare check after copying failed.	Copy the data again.
	PLEASE FORMAT P2 CARD!	This warning indicates that data could not be imported from a hard disk to a P2 card because the P2 card contained recorded data.	You cannot copy to a P2 card that contains data. Format the card on a P2 device and copy again.

# Menu

## Menu Configuration



### Opening the Menus

#### USER MENU:

Displayed when the MENU button is pressed.

#### MAIN MENU:

Displayed when the MENU button is pressed for at least 3 seconds.

#### OPTION MENU:

Displayed when the MENU button is pressed while pressing the LIGHT button.

### Notes

- The items highlighted in grey cannot be selected by <USER MENU SELECT>.
- The underlined items can only be selected by <USER MENU SELECT> as one whole page (with all sub-items). Individual sub-items cannot be selected separately.

### About Menu Description Tables

Items/ Data Saved	Adjustable Range	Remarks
SCAN REVERSE  S C U F R	OFF ON	This setting is for correcting an image which has been inverted by a film-use lens or anamorphic lens attached to the unit.

*a*
*b*
*c*

- The following letters indicate whether the modified menu data is saved to or read out from the memory.  
The – indicates that the data cannot be saved or read.  
**S** = Can be saved and read as scene file data.  
**C** = Can be saved or read using SD CARD READ/WRITE.  
**U** = Can be saved and read as user data.  
 Please refer to [SCENE] (page 203) and [INITIALIZE] (page 203).  
**F** = Can be read using READ FACTORY DATA.  
 Please refer to [INITIALIZE] (page 203).  
**R** = Can set whether or not to store changes using the RC DATA SAVE menu option.  
 Please refer to [Connection of the remote control unit (AJ-RC10G)] (page 123).
- This section shows the adjustable range of the set value, and available options for this item.
- About the settings available for this item.

**USER MENU:** USER MENU is factory-set. The menu can be configured to suit your preferences by specifying each option according to your purposes and frequency of use, through the <USER MENU SELECT> screen, which is accessible from the MAIN MENU page. For more information, see [Selecting Options for USER MENU] (page 169). To display USER MENU, press the MENU button.

**MAIN MENU:** Allows you to set all options on the settings menu. This menu has a category-by-category structure, layered according to purposes and frequency of use. To display MAIN MENU, press the MENU button for 3 seconds or longer.

**SYSTEM SETTING:** This option is used to specify recording signal, recording system, etc.

**PAINT:** This option is used to fine-adjust images while monitoring the output waveform of the camera, using the waveform monitor. Normally, this adjustment requires assistance from a video engineer.

This option may be performed by an external remote control. However, it is valid when the unit is used as a stand-alone device.

**VF:** Used to select the information items to be displayed in the viewfinder screen.

**CAM OPERATION:** Used to change settings according to the conditions for the subject.

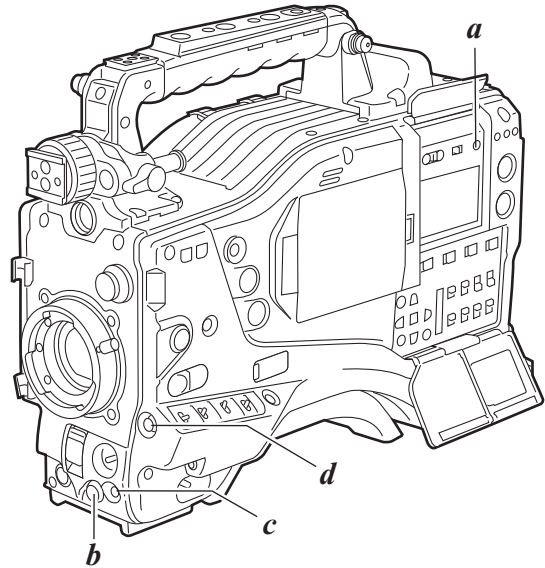
**MAIN OPERATION:** Used to specify recording-related items, such as audio settings, time code, battery and P2 card remaining amounts.

**FILE:** Used to specify file-related items such as SD memory card reading/writing and lens file settings.

**MAINTENANCE:** Used to specify maintenance-related items.

**USER MENU SELECT:** Used to edit USER MENU.

**OPTION MENU:** Provides options which may be needed if functions are added in the future. To display OPTION MENU, hold down the LIGHT button and press the MENU button.



- a. LIGHT button
- b. Jog dial button
- c. MENU button
- d. SHOT MARKER/MENU CANCEL button

## Setting Menu Options

The menu options are set with the MENU and jog dial buttons.

The menu comprises main menu, sub-menus and options menus.

The data specified through menu options are written and saved in the internal memory of the unit.

This section describes how to set options in MAIN MENU.

The other menus can be configured in the same manner (the method of displaying the menu screen depends on the particular menu).

### ◆ Note

When the unit is in thumbnail mode, the viewfinder displays "THUMBNAIL OPEN", disabling navigation through the menu.

- 1 Press the MENU button for 3 seconds or longer. The MAIN MENU screen appears, together with its options.

```
→ **** MAIN MENU ****
SYSTEM SETTING
PAINT
VF
CAM OPERATION
MAIN OPERATION
FILE
MAINTENANCE
USER MENU SELECT
```

- 2 Turn the jog dial button to move the mark (→) to a desired menu option. Then, press the jog dial button to display the sub-menu screen.

```
**** MAIN MENU ****
SYSTEM SETTING
PAINT
VF
→ CAM OPERATION
MAIN OPERATION
FILE
MAINTENANCE
USER MENU SELECT
```

- 3 Turn the jog dial button to move the mark (→) to a desired menu option. Then, press the jog dial button to display the options screen.

```
< CAM OPERATION >
CAMERA ID
SHUTTER SPEED
SHUTTER SELECT
→ USER SW
SW MODE
WHITE BALANCE MODE
LENS/IRIS
```

- 4 Turn the jog dial button to move the mark (→) to a desired option. Then, press the jog dial button. The value starts blinking.

```
< USER SW >
→ USER MAIN SW :VF FR
USER1 SW :VF GET
USER2 SW :VF GAM
MARKER SEL :VF MARK
(USER3 SW)
TEXT MEMO SW :TEXT MEMO
(USER4 SW)
```

- 5 Turn the jog dial button to change the value.

#### To increase the value:

Turn the jog dial button clockwise, as seen from the front of the camera.

#### To decrease the value:

Turn the jog dial button anti-clockwise, as seen from the front of the camera.

Each turn of the dial switches the value by one step. A quick turn changes the value rapidly; a slow turn makes a fine adjustment.

#### To turn an option on or off:

To select "ON", turn the jog dial button clockwise, as seen from the front of the camera.

To select "OFF", turn the jog dial button anti-clockwise, as seen from the front of the camera.

#### To return the changed set value to the previous one:

To return the changed value to the previous one, press the SHOT MARKER/MENU CANCEL button once while the changed value is flashing and "PUSH CANCEL BACK TO PREV" will appear. Press the SHOT MARKER/MENU CANCEL button again to return the set value to the value before the change.

### ◆ Notes

- The following menu items cannot be canceled using the SHOT MARKER/MENU CANCEL button.
  - Pages on the USER MENU SELECT screen
  - Pages on the FILE screen
  - CAMERA ID
  - Part of the WHITE BALANCE MODE pages
  - BATTERY SETTING1, 2
  - UMID SET/INFO
- In the 1080/23.98P and 1080/24P modes, the menu displayed on the LCD monitor may blink. This is normal, and does not indicate that a fault has occurred.



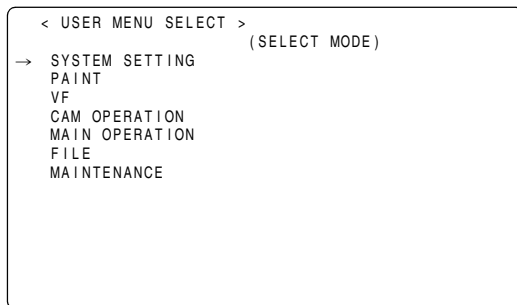
- 6 Press the jog dial button.  
The value stops blinking and is accepted.
- 7 To change the settings for other options on the same page, repeat steps 4 - 6.
- 8 When the settings are finalized, press the MENU button.  
This terminates the menu option setting mode and returns the unit to normal operation mode.

## Selecting Options for USER MENU

Go to the USER MENU SELECT page from MAIN MENU. Then, open relevant menu screens to select options to add to USER MENU.

Only the selected options are displayed as options in USER MENU.

For information about how to navigate this menu, see [Setting Menu Options] (page 168).



### ◆ Note

Options with [\*] are effective. The number of options that can be added to USER MENU is  $14 \times 3 = 42$  (3 pages of options) for camera-related options, and 14 (1 page of options) for memory-related options. Note, however, that the number of options that can be added is reduced if menu options not normally displayed in the selected mode are added.

# Menu Description Tables

## SYSTEM SETTING

The \_\_\_\_ in the Adjustable Range column indicates the preset mode.

### SYSTEM MODE

Items/ Data Saved	Adjustable Range	Remarks
SYSTEM MODE	1080-59.94i 1080-23.98PsF 1080-24PsF 1080-50i	For setting the system frequency. When this item is switched, turn off the POWER switch on the unit and then turn it on again. ◆Notes • When USB DEVICE mode is selected, no change can be made to this option. • When the remote control unit (AJ-RC10G) is connected, this item is not displayed.
<b>S C U F -</b>		
REC FORMAT		Used to set the codec mode and the recording/shooting mode. <b>DVCPROHD:</b> Recording is performed using DVCPRO HD codec. <b>AVC-I 100:</b> Recording is performed using AVC-Intra100 codec. <b>AVC-I 50:</b> Recording is performed using AVC-Intra50 codec.
	DVCPROHD/60i AVC-I 100/60i AVC-I 100/30PN AVC-I 100/24PN AVC-I 50/60i AVC-I 50/30PN AVC-I 50/24PN	Used when SYSTEM MODE is set to 1080-59.94i. When DVCPROHD/60i is selected, it is possible to refine the shooting mode selection by setting CAMERA MODE.
	AVC-I 100/24PN AVC-I 50/24PN	Used when SYSTEM MODE is set to 1080-23.98PsF or 1080-24PsF.
	DVCPROHD/50i AVC-I 100/50i AVC-I 100/25PN AVC-I 50/50i AVC-I 50/25PN	Used when SYSTEM MODE is set to 1080-50i. When DVCPROHD/50i is selected, it is possible to refine the shooting mode selection by setting CAMERA MODE.
<b>S C U F R</b>		

Items/ Data Saved	Adjustable Range	Remarks
CAMERA MODE	(DVCPROHD/ 60i of 1080- 59.94i) 60i 30P 24P 24PA (DVCPROHD/ 50i of 1080-50i) 50i 25P (Modes other than the above) 24P 25P	When using the DVCPRO HD recording format in the 1080-60i or 1080-50i modes, the pull-down method (conventional camera mode) will be set.
<b>S C U F R</b>		
VFR	OFF ON	This is for setting the variable frame rate. <b>OFF:</b> Operates with a fixed frame number. Operates with a frame rate set using REC FORMAT. <b>ON:</b> Operates with a variable frame rate. Operates with a frame rate set using FRAME RATE. ◆Note When INTERVAL REC or LOOP REC is set, this setting is set to "OFF".
<b>S C U F R</b>		
24P VFR RANGE	24FRAME 30FRAME	Select the upper limit of the frame rate that can be changed during VFR. This item is displayed only when "1080-23.98PsF" or "1080-24PsF" is selected in SYSTEM MODE. ◆Note Sequence of the HD SDI output signal will be disturbed when this item is set to "30FRAME" and FRAME RATE is set to "24-30FRAME", but this is not a malfunction.
<b>- - - F -</b>		
FRAME RATE	(1080-59.94i, 1080-23.98PsF, 1080-24PsF) 1FRAME : 24FRAME : 30FRAME (1080-50i) 1FRAME : 25FRAME	This is for setting the shooting frame number during VFR operation. When the mode has been changed using other settings and the frame rate value set here exceeds the maximum frame rate allowed by the set mode, the maximum frame rate is changed to the maximum frame rate of the set mode.
<b>S C U F R</b>		

Items/ Data Saved	Adjustable Range	Remarks
USR SW F.RATE	(1080-59.94i, 1080-23.98PsF, 1080-24PsF) 1FRAME : <u>24FRAME</u> : 30FRAME (1080-50i) 1FRAME : <u>25FRAME</u>	When the FRATE function has been assigned to a user button, the starting frame rate under VFR operation is set. When the mode has been changed using other settings and the frame rate value set here exceeds the maximum frame rate allowed by the set mode, the maximum frame rate is changed to the maximum frame rate of the set mode.
<b>S</b> <b>C</b> <b>U</b> <b>F</b> <b>R</b>		
SCAN REVERSE	ON <u>OFF</u>	This setting is for correcting an image which has been inverted by a film-use lens or anamorphic lens attached to the unit.
<b>S</b> <b>C</b> <b>U</b> <b>F</b> <b>R</b>		
PC MODE SEL	<u>USB HOST</u> USB DEV.	This is for setting the operations mode of this unit when PC MODE is set to "ON" and an external device is connected to the USB connector. <b>USB HOST:</b> Allows data transfer from the unit to the USB-connected device. <b>USB DEV.:</b> Allows data transfer from the USB-connected device to the unit.  ◆ <b>Note</b> When the PC MODE menu option is set to "ON", no change can be made to this option.
<b>-</b> <b>-</b> <b>-</b> <b>F</b> <b>-</b>		
PC MODE	ON <u>OFF</u>	Used to enable or disable the mode that allows the unit to be connected to a PC or an external hard disk drive via USB 2.0. <b>ON:</b> Sets the unit to the mode selected through the PC MODE SELECT menu option. <b>OFF:</b> Disables the PC MODE for normal operation.  ◆ <b>Note</b> Once the power is turned off, the option is always set to "OFF" when the power is turned on next time.
<b>-</b> <b>-</b> <b>-</b> <b>F</b> <b>-</b>		

## OPTION MODE

Items/ Data Saved	Adjustable Range	Remarks
ACCESS LED	OFF SLOT SIDE LCD SIDE <u>BOTH</u>	Specify whether or not to enable the P2 card access LEDs. <b>OFF:</b> Disables both LEDs above the slots and on the side panel. <b>SLOT SIDE:</b> Enables the LED above the slots and disables the LED on the side panel. <b>LCD SIDE:</b> Enables the LED on the side panel and disables the LED above the slots. <b>BOTH:</b> Enables both LEDs above the slots and on the side panel.
<b>-</b> <b>C</b> <b>U</b> <b>F</b> <b>-</b>		
P.OFF GPS DATA	HOLD <u>CLEAR</u>	Select whether or not to hold the UMID GPS position information while the power is turned off, thereby keeping this information as status data holding the previous value until the power is turned on again, which enables a new measurement to start. <b>HOLD:</b> Hold and save the data. <b>CLEAR:</b> Clear the data when the power is turned off, and save zero (No-Info) from the next power-on until a new measurement is completed.
<b>-</b> <b>C</b> <b>U</b> <b>F</b> <b>-</b>		
SDI METADATA	ON <u>OFF</u>	Used to specify whether or not to output metadata (UMID) to HD SDI.
<b>-</b> <b>C</b> <b>U</b> <b>F</b> <b>-</b>		
SAVE SW (AUD OUT)	ON <u>OFF</u>	Select whether or not to forcibly disable the audio output when the SAVE ON/OFF switch is set to [ON]. <b>ON:</b> Disable audio output. <b>OFF:</b> Enable audio output.
<b>-</b> <b>C</b> <b>U</b> <b>F</b> <b>-</b>		
SAVE SW (LCD)	ON <u>OFF</u>	Select whether or not to automatically turn off the LCD monitor when the SAVE ON/OFF switch is set to [ON]. <b>ON:</b> Turn off LCD monitor. <b>OFF:</b> Do not turn off LCD monitor.
<b>-</b> <b>C</b> <b>U</b> <b>F</b> <b>-</b>		

# REC FUNCTION

Items/ Data Saved	Adjustable Range	Remarks
INTERVAL REC MODE	ON ONE SHOT OFF	Sets INTERVAL REC function. <b>ON:</b> Uses internal memory to perform interval recording. <b>ONE SHOT:</b> Performs "one-shot" recording for the duration specified under REC TIME, and then stops. <b>OFF:</b> INTERVAL REC is not performed. <b>◆Note</b> This item cannot be changed when "ON" is selected in LOOP REC MODE.
- C U F -		
INTERVAL REC HOLD	ON OFF	Selects whether INTERVAL REC MODE settings are retained or not when the power is turned off once. <b>ON:</b> Retain <b>OFF:</b> Do not retain. The INTERVAL REC MODE is "OFF" whenever the power is turned on again.
- C U F -		
REC TIME*	00s01f : 59s29f	Set recording time for INTERVAL REC (1 cut). <b>◆Note</b> However the settings can be made frame by frame, and the numbers of the cut-off unit frames for the shortest time period and the set time on the actual operation may vary with the recording method. For details, refer to [Interval Recording] (page 44).
- C U F -		
PAUSE TIME*	00h00m00s01f : 00h04m59s23f : 23h59m59s29f	Specify pause time for INTERVAL REC. <b>◆Note</b> However the settings can be made frame by frame, and the numbers of the cut-off unit frames for the shortest time period and the set time on the actual operation may vary with the recording method. For details, refer to [Interval Recording] (page 44).
- C U F -		
TAKE TOTAL TIME	NONE : 5day	Specify the time needed for INTERVAL REC. Select from "NONE" (continue until operation is manually stopped) to 5 days.
- C U F -		
TOTAL REC TIME*	NONE 00m00s01f : 99m59s29f OVER100min	Display total recorded time for INTERVAL REC. The setting cannot be changed using this option. Displays the recording time (recording time needed for the P2 card) calculated using REC TIME, PAUSE TIME, and TAKE TOTAL TIME. <b>◆Note</b> A value based on actual processing is displayed.
- - - - -		
AUDIO REC	ON OFF	Select whether or not sound will be recorded during INTERVAL REC.
- C U F -		
START DELAY	0SEC : 10SEC	Set the delay after pressing REC START to start recording in INTERVAL REC.
- C U F -		

\* This variable range is the numerical values for 59.94 Hz. For 50 Hz, the frame rate is up to 24f. The frame rate is up to 23f in 24PN (Native) mode.

Items/ Data Saved	Adjustable Range	Remarks
PRE REC MODE	ON OFF	Select whether or not to enable PRE RECORDING. <b>ON:</b> PRE RECORDING enabled. <b>OFF:</b> PRE RECORDING disabled. <b>◆Note</b> Specify the PRE RECORDING time by using the menu option PRE REC TIME.
- C U F -		
PRE REC TIME	1SEC : 8SEC	Set PRE RECORDING. <b>1-8SEC:</b> Set the length of time that can be retrospectively recorded before the REC START button is pressed.
- C U F -		
LOOP REC MODE	ON OFF	Select whether or not to enable LOOP REC. This setting can be used with PRE RECORDING features. <b>ON:</b> Enable LOOP REC. <b>OFF:</b> Disable LOOP REC. <b>◆Notes</b> • After the power is turned off, this item will default to "OFF" the next time the power is turned on. • This item cannot be changed when "ON" or "ONE SHOT" is selected in INTERVAL REC MODE.
- - - F -		
REC START	ALL NORMAL	Select operating modes that allow recording to start. <b>ALL:</b> Allow recording to start during stop, recording pause, and playback. <b>NORMAL:</b> Allow recording to start during stop and recording pause. <b>◆Note</b> Even if this is set to "ALL", the operation is "NORMAL", when "ON" or "ONE SHOT" is selected in INTERVAL REC MODE.
- C U F -		
P.ON REC SLOT SEL	HOLD SLOT1	Select the recording order of the slot when the power is turned on. <b>HOLD:</b> The recording order starts with the card previously selected when the power was turned off. <b>SLOT1:</b> The recording order starts with the card that is inserted in slot 1 when the power is turned on.
- C U F -		

### ◆Note

Displayed REC TIME, PAUSE TIME and TOTAL REC TIME are translated into either drop-frame or non-drop-frame according to the mode of operation. TAKE TOTAL TIME is actual time. Therefore, TOTAL REC TIME may incorporate fractions, depending on the settings.



#### Example of drop-frame

REC TIME	02s00f
PAUSE TIME	02s00f
TAKE TOTAL TIME	40min
TOTAL REC TIME	19m59s06f

## OUTPUT SEL


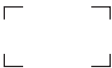
Items/ Data Saved	Adjustable Range	Remarks
SIGNAL FORMAT	4:2:2 4:4:4	Select the signal that is output from the HD SDI A · B connectors. <b>4:2:2:</b> YPbPr 4:2:2 format is selected. <b>4:4:4:</b> RGB 4:4:4 format is selected. LINK A will be output from the HD SDI A connector, and LINK B from the HD SDI B connector.
- C U F -		
P-10LOG	ON OFF	<b>ON:</b> P-10LOG format signal is output. This is valid when GAMMA MODE SEL is set to "FILM-REC", and SIGNAL FORMAT is set to "4:4:4". <b>OFF:</b> Signal format set in GAMMA MODE SEL is output. <b>◆Note</b> If you select "ON" in this item, 2D-CMS will operate simultaneously as well.
- C U F -		
OUTPUT ITEM	MENU ONLY TC STATUS	Set the character contents superimposed onto the output signals for the HD SDI A · B connector and MON OUT connector. <b>MENU ONLY:</b> Displays only when the menu characters are superimposed. No display appears when other characters are superimposed. <b>TC:</b> Display the time code. (Displays the menu when menu characters are superimposed.) Note that when 1080/23.98PsF or 1080/24PsF has been selected in the SYSTEM MODE menu option, the frame digits will not be updated correctly. <b>STATUS:</b> Display the same characters superimposed on the viewfinder signal. (Displays the menu when menu characters are superimposed.)
- C U F -		
HD SDI A · B CHAR	OFF A B BOTH	Select whether to superimpose characters on the HD SDI A · B connector. (The character content output from the HD SDI A · B and MON OUT connectors is the same.) <b>OFF:</b> The characters are not superimposed. <b>A:</b> The characters are superimposed on the HD SDI A connector. <b>B:</b> The characters are superimposed on the HD SDI B connector. <b>BOTH:</b> The characters are superimposed on the HD SDI A connector and the HD SDI B connector.
- C U F -		

Items/ Data Saved	Adjustable Range	Remarks
MONITOR OUT	VBS HD SDI	Select the output signal on the MON OUT connector.
- C U F -		
MONITOR GAMMA	ON OFF	This sets whether to perform telecine conversion correction on the MON OUT, RC OUT, and LCD OUT signals when GAMMA MODE SEL is set to "FILM-REC". <b>ON:</b> Correction is performed. <b>OFF:</b> Correction is not performed.
- C U F -		
VF/LCD CHAR	VF-OFF LCD-OFF ON	This sets whether to superimpose characters on the video shown on the LCD monitor and in the viewfinder. Note, however, that the characters are output to one of the MON OUT, VF OUT and LCD OUT signals.
- C U F -		
VF MODE	MEM CAM	Select the image to display in the viewfinder. <b>MEM:</b> Display the playback image in the playback mode. Display the camera image at other times. <b>CAM:</b> Always display the camera image.
- C U F -		
VF SEL	MONO COLOR	Select the video signal that is output to the viewfinder connector. <b>MONO:</b> Output the Y signal alone to the viewfinder connector. <b>COLOR:</b> Output the Y, Pb, and Pr signals to the viewfinder connector.
- C U F -		
THUMBNAI OUT	ON OFF	Select whether or not to output clip thumbnails displayed on the LCD monitor to the MON OUT (VBS) signal and the REMOTE connector. <b>ON:</b> Enable output. <b>OFF:</b> Disable output. <b>◆Note</b> Even when the MON OUT OUTPUT SEL switch is in the [CAM] position, thumbnails are output when this option is set to "ON".
- C U F -		
DOWNCON MODE	SQUEEZE LT-BOX	For setting the mode of the down converter output signals.
- C U F -		

Items/ Data Saved	Adjustable Range	Remarks
MARKER SW	OFF A B BOTH	Switches the marker on and off. <b>OFF:</b> The characters are not superimposed. <b>A:</b> The characters are superimposed on the HD SDI A connector. <b>B:</b> The characters are superimposed on the HD SDI B connector. <b>BOTH:</b> The characters are superimposed on the HD SDI A connector and the HD SDI B connector.
- C U F R		
CENTER MARK	OFF 1 2 3 4	Switch the center mark. <b>OFF:</b> Do not display center mark. <b>1:</b> + (large) <b>2:</b> Hollow (large) <b>3:</b> + (small) <b>4:</b> Hollow (small)
- C U F R		
SAFETY MARK	OFF 1 2	Select the frame type for the safety zone. <b>OFF:</b> Do not display frame. <b>1:</b> Box  <b>2:</b> Corner frame 
- C U F R		
SAFETY AREA	80% : 90% : 100%	For setting the size of the safety marker. It is possible to set the size by units of 1% with a fixed ratio between of width and height.
- C U F R		
FRAME MARK	ON OFF	Set the frame marker to "ON" or "OFF".
- C U F R		

Items/ Data Saved	Adjustable Range	Remarks
FRAME SIG	4:3 13:9 14:9 VISTA CNSCO	Set the frame marker. The VISTA ratio is 16:8.65. The CNSCO ratio is 16:6.81.
- C U F R		
USER BOX	ON OFF	For setting whether to include the user box in the signal from the HD SDI A · B connector.
- C U F R		
USER BOX WIDTH	1 : 13 : 100	For setting the width of the user box.
- C U F R		
USER BOX HEIGHT	1 : 13 : 100	For setting the height of the user box.
- C U F R		
USER BOX H POS	-50 : +00 : +50	For setting the horizontal position of the user box center.
- C U F R		
USER BOX V POS	-50 : +00 : +50	For setting the vertical position of the user box center.
- C U F R		

## MONI OUT MARKER

Items/ Data Saved	Adjustable Range	Remarks
CENTER MARK	OFF 1 2 3 4	Switch the center mark. <b>OFF:</b> Do not display center mark. <b>1:</b> + (large) <b>2:</b> Hollow (large) <b>3:</b> + (small) <b>4:</b> Hollow (small)
- C U F R		
SAFETY MARK	OFF 1 2	Select the frame type for the safety zone. <b>OFF:</b> Do not display frame. <b>1:</b> Box  <b>2:</b> Corner frame 
- C U F R		
SAFETY AREA	80% : 90% : 100%	For setting the size of the safety marker. It is possible to set the size by units of 1% with a fixed ratio between of width and height.
- C U F R		
FRAME MARK	ON OFF	Set the frame marker to "ON" or "OFF".
- C U F R		
FRAME SIG	4:3 13:9 14:9 VISTA CNSCO	Set the frame marker. The VISTA ratio is 16:8.65. The CNSCO ratio is 16:6.81.
- C U F R		
USER BOX	ON OFF	For setting whether to include the user box in the signal from the MON OUT connector.
- C U F R		
USER BOX WIDTH	1 : 13 : 100	For setting the width of the user box.
- C U F R		
USER BOX HEIGHT	1 : 13 : 100	For setting the height of the user box.
- C U F R		
USER BOX H POS	-50 : ±00 : +50	For setting the horizontal position of the user box center.
- C U F R		
USER BOX V POS	-50 : ±00 : +50	For setting the vertical position of the user box center.
- C U F R		

## LCD MONITOR

Items/ Data Saved	Adjustable Range	Remarks
BRIGHTNESS	-7 : +0 : +7	Adjust the LCD monitor brightness.
- C U F R		
COLOR LEVEL	-7 : +0 : +7	Adjust the LCD monitor chroma level.
- C U F R		
CONTRAST	-7 : +0 : +7	Adjust the LCD monitor contrast.
- C U F R		
BACKLIGHT	NORMAL HIGH	Adjust the backlight. <b>NORMAL:</b> Mode normally used <b>HIGH:</b> This is brighter than NORMAL.
- C U F R		
SELF SHOOT	NORMAL MIRROR	Select whether or not to change the LCD monitor to mirror image. <b>NORMAL:</b> Do not change to mirror image. <b>MIRROR:</b> Change to mirror image.
- C U F R		

# GENLOCK

Items/ Data Saved	Adjustable Range	Remarks
GENLOCK	INT EXT	Switch the camera synchronizing signal. <b>INT:</b> Synchronize with the internal reference signal regardless of the reference signal input to the GENLOCK IN connector. <b>EXT:</b> Synchronize with the reference signal input to the GENLOCK IN connector.
- C U F R		
GL PHASE	HD SDI COMPOSIT	For selecting the output signals that lock phases to the signals that are input in the GENLOCK IN connector. Note, however, that in 1080/23.98PsF mode and 1080/24PsF mode, the phase is locked to HD SDI even if "COMPOSIT" has been selected. <b>HD SDI:</b> For locking the HD SDI output signals to the GENLOCK input. For the down converter output signals, the start position of the video delays by about 90 lines. <b>COMPOSIT:</b> For locking the down converter output signals to the GENLOCK input. For the HD SDI output signals, the start position of the video gains by about 90 lines.
- C U F R		
H PHASE COARSE	-100 : +000 : +100	Perform coarse phase adjustment for horizontal hold when configuring a system.
- - - - -		
H PHASE FINE	-100 : +000 : +100	Perform fine phase adjustment for horizontal hold when configuring a system.
- - - - -		



# PAINT

The \_\_\_\_ in the Adjustable Range column indicates the preset mode.

## RB GAIN CONTROL

Items/ Data Saved	Adjustable Range	Remarks
R GAIN AWB PRE*	-200 : +000 : +200	For setting the Rch gain when the WHITE BAL switch is in the [PRST] position.
<b>S</b> <b>C</b> <b>U</b> <b>F</b> <b>R</b>		
B GAIN AWB PRE*	-200 : +000 : +200	For setting the Bch gain when the WHITE BAL switch is in the [PRST] position.
<b>S</b> <b>C</b> <b>U</b> <b>F</b> <b>R</b>		
R GAIN AWB A*	-200 : +000 : +200	For setting the Rch gain when the WHITE BAL switch is in the [A] position.
<b>S</b> <b>C</b> <b>U</b> <b>F</b> <b>R</b>		
B GAIN AWB A*	-200 : +000 : +200	For setting the Bch gain when the WHITE BAL switch is in the [A] position.
<b>S</b> <b>C</b> <b>U</b> <b>F</b> <b>R</b>		
R GAIN AWB B*	-200 : +000 : +200	For setting the Rch gain when the WHITE BAL switch is in the [B] position.
<b>S</b> <b>C</b> <b>U</b> <b>F</b> <b>R</b>		
B GAIN AWB B*	-200 : +000 : +200	For setting the Bch gain when the WHITE BAL switch is in the [B] position.
<b>S</b> <b>C</b> <b>U</b> <b>F</b> <b>R</b>		
AWB A GAIN OFFSET*	ON OFF	For setting the values of the Rch gain and the Bch gain when the auto white balance is executed as the WHITE BAL switch is in the [A] position. <b>ON:</b> To retain the values set in the items of R GAIN AWB A and B GAIN AWB A <b>OFF:</b> The values of the Rch gain and the Bch gain is set to "0".
<b>S</b> <b>C</b> <b>U</b> <b>F</b> <b>R</b>		
AWB B GAIN OFFSET*	ON OFF	For setting the values of the Rch gain and the Bch gain when the auto white balance is executed as the WHITE BAL switch is in the [B] position. <b>ON:</b> To retain the values set in the items of R GAIN AWB B and B GAIN AWB B <b>OFF:</b> The values of the Rch gain and the Bch gain is set to "0".
<b>S</b> <b>C</b> <b>U</b> <b>F</b> <b>R</b>		

## RGB BLACK CONTROL

Items/ Data Saved	Adjustable Range	Remarks
MASTER PED*	-200 : +000 : +200	For setting the level of the master pedestal.
<b>S</b> <b>C</b> <b>U</b> <b>F</b> <b>R</b>		
R PEDESTAL*	-100 : +000 : +100	For setting the pedestal level of the Rch.
<b>S</b> <b>C</b> <b>U</b> <b>F</b> <b>R</b>		
G PEDESTAL*	-100 : +000 : +100	For setting the pedestal level of the Gch.
<b>S</b> <b>C</b> <b>U</b> <b>F</b> <b>R</b>		
B PEDESTAL*	-100 : +000 : +100	For setting the pedestal level of the Bch.
<b>S</b> <b>C</b> <b>U</b> <b>F</b> <b>R</b>		
PEDESTAL OFFSET*	ON OFF	For setting the pedestal levels of the Rch, the Gch and the Bch when the auto black balance is adjusted. <b>ON:</b> To retain the values set in the respective items of R PEDESTAL, G PEDESTAL, and B PEDESTAL <b>OFF:</b> The pedestal levels of the Rch, the Gch and the Bch are set to "0".
<b>S</b> <b>C</b> <b>U</b> <b>F</b> <b>-</b>		
R FLARE*	-100 : +000 : +100	For adjusting the flare level of the Rch. Adjustment values in this item are added to the flare adjustment value that is adjusted on <LENS FILE ADJ> screen.
<b>S</b> <b>C</b> <b>U</b> <b>F</b> <b>R</b>		
G FLARE*	-100 : +000 : +100	For adjusting the flare level of the Gch. Adjustment values in this item are added to the flare adjustment value that is adjusted on <LENS FILE ADJ> screen.
<b>S</b> <b>C</b> <b>U</b> <b>F</b> <b>R</b>		
B FLARE*	-100 : +000 : +100	For adjusting the flare level of the Bch. Adjustment values in this item are added to the flare adjustment value that is adjusted on <LENS FILE ADJ> screen.
<b>S</b> <b>C</b> <b>U</b> <b>F</b> <b>R</b>		

\* If the remote control unit is connected, settings made from the menu are disabled. (The set value is displayed.)

## MATRIX

Items/ Data Saved	Adjustable Range	Remarks
■ MATRIX TABLE S C U F R	A B	For selecting the color correction table for the linear matrix.
MATRIX R-G S C U F R	-63 : +31 : +63	For performing the linear matrix adjustment. (red/green)
MATRIX R-B S C U F R	-63 : -04 : +63	For performing the linear matrix adjustment. (red/blue)
MATRIX G-R S C U F R	-63 : -01 : +63	For performing the linear matrix adjustment. (green/red)
MATRIX G-B S C U F R	-63 : +04 : +63	For performing the linear matrix adjustment. (green/blue)
MATRIX B-R S C U F R	-63 : +01 : +63	For performing the linear matrix adjustment. (blue/red)
MATRIX B-G S C U F R	-63 : -01 : +63	For performing the linear matrix adjustment. (blue/green)
■ L MATRIX TABLE S C U F R	OFF A B	For selecting the color correction table when the GAIN switch is in the [L] position.
■ M MATRIX TABLE S C U F -	OFF A B	For selecting the color correction table when the GAIN switch is in the [M] position.
■ H MATRIX TABLE S C U F -	OFF A B	For selecting the color correction table when the GAIN switch is in the [H] position.

### ◆ Notes

- The items indicated by ■ are the setting items for PAINT MENU SW(■) R/W in the <SD CARD R/W SELECT> screen. The items without ■ are the setting items for PAINT MENU LEVEL R/W. Please refer to [SD CARD R/W SELECT] (page 201) for more information.
- In the preset mode, the linear matrix data of MATRIX TABLE B are all set to "+00".

## COLOR CORRECTION

Items/ Data Saved	Adjustable Range	Remarks
R (SAT) S C U F R	-63 : +00 : +63	For performing the color saturation correction of red.
R-Mg (SAT) S C U F R	-63 : +00 : +63	For performing the color saturation correction between red and magenta.
Mg (SAT) S C U F R	-63 : +00 : +63	For performing the color saturation correction of magenta.
Mg-B (SAT) S C U F R	-63 : +00 : +63	For performing the color saturation correction between magenta and blue.
B (SAT) S C U F R	-63 : +00 : +63	For performing the color saturation correction of blue.
B-Cy (SAT) S C U F R	-63 : +00 : +63	For performing the color saturation correction between blue and cyan.
Cy (SAT) S C U F R	-63 : +00 : +63	For performing the color saturation correction of cyan.
Cy-G (SAT) S C U F R	-63 : +00 : +63	For performing the color saturation correction between cyan and green.
G (SAT) S C U F R	-63 : +00 : +63	For performing the color saturation correction of green.
G-YI (SAT) S C U F R	-63 : +00 : +63	For performing the color saturation correction between green and yellow.
YI (SAT) S C U F R	-63 : +00 : +63	For performing the color saturation correction of yellow.
YI-R (SAT) S C U F R	-63 : +00 : +63	For performing the color saturation correction between yellow and red.

Items/ Data Saved	Adjustable Range	Remarks
R (PHASE)	-63 : ±00 : +63	For performing the hue correction for red.
S C U F R		
R-Mg (PHASE)	-63 : ±00 : +63	For performing the hue correction between red and magenta.
S C U F R		
Mg (PHASE)	-63 : ±00 : +63	For performing the hue correction for magenta.
S C U F R		
Mg-B (PHASE)	-63 : ±00 : +63	For performing the hue correction between magenta and blue.
S C U F R		
B (PHASE)	-63 : ±00 : +63	For performing the hue correction for blue.
S C U F R		
B-Cy (PHASE)	-63 : ±00 : +63	For performing the hue correction between blue and cyan.
S C U F R		
Cy (PHASE)	-63 : ±00 : +63	For performing the hue correction for cyan.
S C U F R		
Cy-G (PHASE)	-63 : ±00 : +63	For performing the hue correction between cyan and green.
S C U F R		
G (PHASE)	-63 : ±00 : +63	For performing the hue correction for green.
S C U F R		
G-Y (PHASE)	-63 : ±00 : +63	For performing the hue correction between green and yellow.
S C U F R		
Y (PHASE)	-63 : ±00 : +63	For performing the hue correction for yellow.
S C U F R		
Y-R (PHASE)	-63 : ±00 : +63	For performing the hue correction between yellow and red.
S C U F R		
■COLOR CORRECT	ON OFF	For switching on/off of the 12-axis independent color correction of the position selected with the GAIN switch ([L], [M], [H]).
S C U F R		

## LOW SETTING

Items/ Data Saved	Adjustable Range	Remarks
■MASTER GAIN	-3dB : 0dB : 30dB	Select the master gain from -3, 0, 3, 6, 9, 12, 15, 18, 21, 24, 27, or 30 dB.
S C U F R		
H.DTL LEVEL	00 : 10 : 63	For performing the horizontal detail correction level setting.
S C U F R		
V.DTL LEVEL	00 : 15 : 31	For performing the vertical detail correction level setting.
S C U F R		
DTL CORING	00 : 04 : 60	For performing the noise elimination level setting for detail.
S C U F R		
H.DTL FREQ.	00 : 18 : 31	For performing the horizontal detail frequency selection.
S C U F R		
LEVEL DEPEND.	0 1 : 5	For setting the LEVEL DEPEND. When the Y-detail is emphasized, details of dark sections are compressed. If the numerical value is larger, details of bright sections are also compressed.
S C U F R		
MASTER GAMMA	0.30 : 0.45 : 0.75	For setting the master gamma. (0.01 step)
S C U F R		
BLACK GAMMA	-8 : OFF : +8	For setting the gamma curve for the dark portion. -8 to -1: The dark portion is compressed. OFF: Standard state +1 to +8: The dark portion is extended.
S C U F R		
B.GAMMA RANGE	1 2 3	For setting the upper limit of compression/expansion. 1: Approximately 20% 2: Approximately 30% 3: Approximately 40%
S C U F R		
■MATRIX TABLE	OFF A B	For selecting the color correction table for the linear matrix.
S C U F R		
■COLOR CORRECT	ON OFF	For switching on/off of the 12-axis independent color correction.
S C U F R		

## ◆ Notes

- The items indicated by ■ are the setting items for PAINT MENU SW(■) R/W in the <SD CARD R/W SELECT> screen. The items without ■ are the setting items for PAINT MENU LEVEL R/W. Please refer to [SD CARD R/W SELECT] (page 201) for more information.

- When shooting with the MASTER GAIN set to “-3dB”, coloring phenomena may occur in portions of the video with high brightness.

The coloring phenomena can be reduced by switching the OUTPUT/AUTO KNEE switch to [CAM/AUTO KNEE OFF], setting the MANUAL KNEE menu option of the <KNEE/LEVEL> screen to “ON”, and then changing the following menu options.

- When “HD”, “SD”, “FILMLIKE1”, “FILMLIKE2” or “FILMLIKE3” has been selected in the GAMMA MODE SEL menu option of the <GAMMA> screen, reduce the value in the KNEE MASTER SLOPE menu option of the <KNEE/LEVEL> screen.
- When “FILM-REC” has been selected in the GAMMA MODE SEL menu option of the <GAMMA> screen, reduce the value in the F-REC DYNAMIC LVL menu option of the <GAMMA> screen.
- When “VIDEO-REC” has been selected in the GAMMA MODE SEL menu option of the <GAMMA> screen, reduce the value in the V-REC KNEE SLOPE menu option of the <GAMMA> screen.

## MID SETTING

Items/ Data Saved	Adjustable Range	Remarks
■MASTER GAIN S C U F -	-3dB : 3dB : 30dB	Select the master gain from -3, 0, 3, 6, 9, 12, 15, 18, 21, 24, 27, or 30 dB.
H.DTL LEVEL S C U F -	00 : 08 : 63	For performing the horizontal detail correction level setting.
V.DTL LEVEL S C U F -	00 : 12 : 31	For performing the vertical detail correction level setting.
DTL CORING S C U F -	00 : 12 : 60	For performing the noise elimination level setting for detail.
H.DTL FREQ. S C U F -	00 : 18 : 31	For performing the horizontal detail frequency selection.
LEVEL DEPEND. S C U F -	0 1 : 5	For setting the LEVEL DEPEND. When the Y-detail is emphasized, details of dark sections are compressed. If the numerical value is larger, details of bright sections are also compressed.
MASTER GAMMA S C U F -	0.30 : 0.45 : 0.75	For setting the master gamma. (0.01 step)
BLACK GAMMA S C U F -	-8 : OFF : +8	For setting the gamma curve for the dark portion. <b>-8 to -1:</b> The dark portion is compressed. <b>OFF:</b> Standard state <b>+1 to +8:</b> The dark portion is extended.
B.GAMMA RANGE S C U F R	1 2 3	For setting the upper limit of compression/expansion. <b>1:</b> Approximately 20% <b>2:</b> Approximately 30% <b>3:</b> Approximately 40%
■MATRIX TABLE S C U F -	OFF A B	For selecting the color correction table for the linear matrix.
■COLOR CORRECT S C U F -	ON OFF	For switching on/off of the 12-axis independent color correction.

## HIGH SETTING

Items/ Data Saved	Adjustable Range	Remarks
■MASTER GAIN : 6dB : 30dB	-3dB : 6dB : 30dB	Select the master gain from -3, 0, 3, 6, 9, 12, 15, 18, 21, 24, 27, or 30 dB.
S C U F -		
H.DTL LEVEL	00 : 06 : 63	For performing the horizontal detail correction level setting.
S C U F -		
V.DTL LEVEL	00 : 10 : 31	For performing the vertical detail correction level setting.
S C U F -		
DTL CORING	00 : 12 : 60	For performing the noise elimination level setting for detail.
S C U F -		
H.DTL FREQ.	00 : 18 : 31	For performing the horizontal detail frequency selection.
S C U F -		
LEVEL DEPEND.	0 : 3 : 5	For setting the LEVEL DEPEND. When the Y-detail is emphasized, details of dark sections are compressed. If the numerical value is larger, details of bright sections are also compressed.
S C U F -		
MASTER GAMMA	0.30 : 0.45 : 0.75	For setting the master gamma. (0.01 step)
S C U F -		
BLACK GAMMA	-8 : OFF : +8	For setting the gamma curve for the dark portion. <b>-8 to -1:</b> The dark portion is compressed. <b>OFF:</b> Standard state <b>+1 to +8:</b> The dark portion is extended.
S C U F -		
B.GAMMA RANGE	1 2 3	For setting the upper limit of compression/expansion. <b>1:</b> Approximately 20% <b>2:</b> Approximately 30% <b>3:</b> Approximately 40%
S C U F R		
■MATRIX TABLE	OFF A B	For selecting the color correction table for the linear matrix.
S C U F -		
■COLOR CORRECT	ON OFF	For switching on/off of the 12-axis independent color correction.
S C U F -		

### ◆ Note

The items indicated by ■ are the setting items for PAINT MENU SW(■) R/W in the <SD CARD R/W SELECT> screen. The items without ■ are the setting items for PAINT MENU LEVEL R/W. Please refer to [SD CARD R/W SELECT] (page 201) for more information.

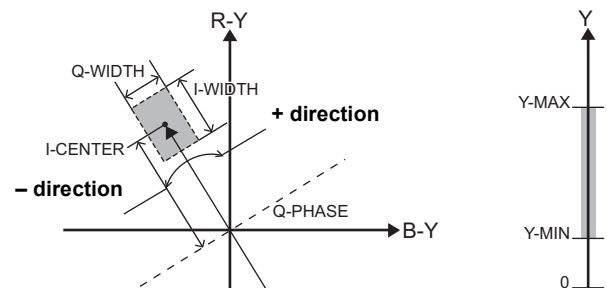
## ADDITIONAL DTL

Items/ Data Saved	Adjustable Range	Remarks
KNEE APE LVL	OFF 1 : 5	For changing the detail level of the high brightness portion.
S C U F R		
DTL GAIN(+)	-31 : +00 : +31	Adjust the detail level toward + (upwards).
S C U F R		
DTL GAIN(-)	-31 : +00 : +31	Adjust the detail level toward - (downwards).
S C U F R		
DTL CLIP	00 : 63	For setting the level for clipping the detail signals.
S C U F R		
DTL SOURCE	(R+G)/2 (G+B)/2 2G+R+B /4 (3G+R)/4 R G	For setting the proportion of the RGB signal components that provide the detail.
S C U F R		
MASTER DTL	-31 : +00 : +31	For revising the master detail level.
S C U F R		

# SKIN TONE DTL

Items/ Data Saved	Adjustable Range	Remarks
■SKIN TONE DTL	OFF A B AB	For selecting the skin color table for enabling the skin tone detail. The skin color table is provided in the DETECT TABLE item. By enabling the skin tone detail, it is possible to shoot human skin more accurately.
S C U F R		
■ZEBRA VF	ON OFF	For the setting to display the zebra pattern in the skin tone area displayed in the viewfinder screen. The zebra pattern is displayed when this item is turned "ON" and the <SKIN TONE DTL> screen is opened. The zebra pattern indicates the area which is selected in the SKIN TONE DTL item.
S C U F R		
■ZEBRA HD SDI A	ON OFF	For setting to include the skin tone zebra in the HD SDI A signal. The zebra pattern is displayed when this item is turned "ON" and the <SKIN TONE DTL> screen is opened. The zebra pattern indicates the area which is selected in the SKIN TONE DTL item.
S C U F R		
■ZEBRA HD SDI B	ON OFF	For setting to include the skin tone zebra in the HD SDI B signal. The zebra pattern is displayed when this item is turned "ON" and the <SKIN TONE DTL> screen is opened. The zebra pattern indicates the area which is selected in the SKIN TONE DTL item.
S C U F R		
■ZEBRA MONI	ON OFF	For setting to include the skin tone zebra in the MON OUT signal. The zebra pattern is displayed when this item is turned "ON" and the <SKIN TONE DTL> screen is opened. The zebra pattern indicates the area which is selected in the SKIN TONE DTL item.
S C U F R		
DETECT TABLE	A B	For selecting the skin color table for subjects to which the skin tone table applies.
S C U F R		
SKIN TONE GET		For fetching the color information of "A" or "B", which is selected in the DETECT TABLE item, near the center marker. When this function is executed, data from I CENTER to Q PHASE are fetched automatically. The fetched data will be the table data of "A" or "B", which is selected in the DETECT TABLE item. It is impossible to obtain color information of both "A" and "B" at the same time.
- - - - -		
SKIN DTL EFFECT	0 : 16 : 31	For setting the effect level of the skin tone detail.
S C U F R		

Items/ Data Saved	Adjustable Range	Remarks
Y MAX	000 : 190 : 255	For setting the maximum value of brightness for enabling the skin tone.
S C U F R		
Y MIN	000 : 010 : 255	For setting the minimum value of brightness for enabling the skin tone.
S C U F R		
I CENTER	000 : 035 : 255	For setting the center position on the I-axis (for setting an area that enables skin tone).
S C U F R		
I WIDTH	000 : 055 : 255	For setting the area width for enabling the skin tone on the I-axis of which the center is the I CENTER.
S C U F R		
Q WIDTH	00 : 10 : 90	For setting the area width for enabling the skin tone on the Q-axis of which the center is the I CENTER.
S C U F R		
Q PHASE	-180 : +000 : +179	For setting phases of the area for enabling skin tone as setting the standard to the Q-axis.
S C U F R		



■ = SKIN TONE AREA

### ◆ Note

The items indicated by ■ are the setting items for PAINT MENU SW(■) R/W in the <SD CARD R/W SELECT> screen. The items without ■ are the setting items for PAINT MENU LEVEL R/W.  
Please refer to [SD CARD R/W SELECT] (page 201) for more information.

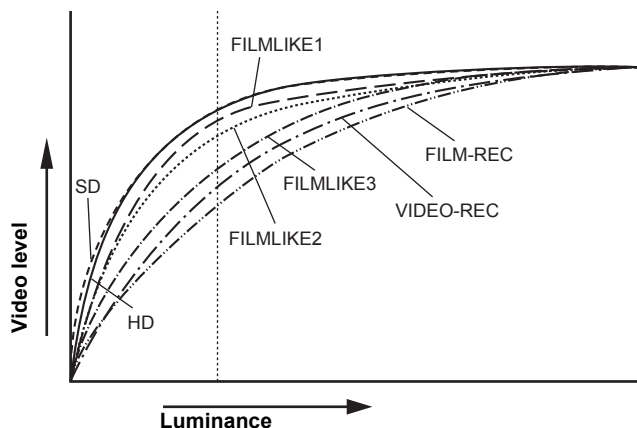
Items/ Data Saved	Adjustable Range	Remarks
MASTER PED : +000 : +200		Set the master pedestal.
<b>S</b> <b>C</b> <b>U</b> <b>F</b> <b>R</b>		
MANUAL KNEE	ON OFF	Set the mode when the AUTO KNEE switch is [OFF]. The KNEE MASTER POINT/KNEE MASTER SLOPE set value is enabled when this setting is "ON".
<b>S</b> <b>C</b> <b>U</b> <b>F</b> <b>R</b>		
KNEE MASTER POINT	70.0% : 93.0% : 107.0%	For setting the knee point position in increments of 0.5% steps.
<b>S</b> <b>C</b> <b>U</b> <b>F</b> <b>R</b>		
KNEE MASTER SLOPE	00 : 85 : 99	For setting the inclination of the knee.
<b>S</b> <b>C</b> <b>U</b> <b>F</b> <b>R</b>		
WHITE CLIP	ON OFF	Set the WHITE CLIP feature to "ON" or "OFF". The WHITE CLIP LVL set value is enabled when this setting is "ON".
<b>S</b> <b>C</b> <b>U</b> <b>F</b> <b>R</b>		
WHITE CLIP LVL	90% : 109%	Set WHITE CLIP level.
<b>S</b> <b>C</b> <b>U</b> <b>F</b> <b>R</b>		
A.KNEE POINT	80% : 93% : 107%	Set the AUTO KNEE point position in 1% steps. This setting is enabled when the OUTPUT/AUTO KNEE selector switch is set to [CAM/AUTO KNEE ON].
<b>S</b> <b>C</b> <b>U</b> <b>F</b> <b>R</b>		
A.KNEE LVL	100 : 107 : 109	Set the AUTO KNEE level.
<b>S</b> <b>C</b> <b>U</b> <b>F</b> <b>R</b>		
A.KNEE RESPONSE	1 : 4 : 8	Set the AUTO KNEE response speed. The smaller the setting value, the faster the response speed.
<b>S</b> <b>C</b> <b>U</b> <b>F</b> <b>R</b>		
CHROMA LEVEL	OFF -99% : +00% : +40%	For setting the chroma level of the PR signals and the Pb signals. If this is set to "OFF", the color elements of video signals are eliminated.
<b>S</b> <b>C</b> <b>U</b> <b>F</b> <b>R</b>		
DRS EFFECT DEPTH	1 2 3	Set the compression level of the high-brightness component of DRS. If the numerical value is larger, the compression level of the high-brightness component increases.
<b>S</b> <b>C</b> <b>U</b> <b>F</b> <b>R</b>		
HI-COLOR SW	ON OFF	For switching the mode on/off which enables the dynamic color range to be expanded.
<b>S</b> <b>C</b> <b>U</b> <b>F</b> <b>R</b>		
HI-COLOR LVL	1 : 32	For selecting the level of the dynamic color range when in the mode which allows expansion of the dynamic color range.
<b>S</b> <b>C</b> <b>U</b> <b>F</b> <b>R</b>		

◆ Notes

- The items indicated by ■ are the setting items for PAINT MENU SW(■) R/W in the <SD CARD R/W SELECT> screen. The items without ■ are the setting items for PAINT MENU LEVEL R/W. Please refer to [SD CARD R/W SELECT] (page 201) for more information.
- When "FILM-REC" or "VIDEO-REC" is selected in the GAMMA MODE SEL menu option on the <GAMMA> screen, the KNEE MASTER SLOPE and KNEE MASTER POINT menu option settings are disabled.

## GAMMA

Items/ Data Saved	Adjustable Range	Remarks
MASTER GAMMA	0.30 : 0.45 : 0.75	Set the master gamma in 0.01 steps.
<b>S</b> <b>C</b> <b>U</b> <b>F</b> <b>R</b>		
R GAMMA	-15 : +00 : +15	Set the Rch gamma.
<b>S</b> <b>C</b> <b>U</b> <b>F</b> <b>R</b>		
B GAMMA	-15 : +00 : +15	Set the Bch gamma.
<b>S</b> <b>C</b> <b>U</b> <b>F</b> <b>R</b>		
GAMMA MODE SEL	HD SD FILMLIKE1 FILMLIKE2 FILMLIKE3 FILM-REC VIDEO-REC	For selecting the gamma mode. <b>HD:</b> Video gamma characteristics for HD (High Definition) <b>SD:</b> The gain in the dark section is higher than the HD gamma. <b>FILMLIKE1:</b> In this setting gradations in highlight areas can be expressed better than the HD gamma. <b>FILMLIKE2:</b> In this setting gradations in highlight areas can be expressed better than when FILMLIKE1 is selected. <b>FILMLIKE3:</b> In this setting gradations in highlight areas can be expressed better than when FILMLIKE2 is selected. <b>FILM-REC:</b> The cinema gamma characteristics for film applications. <b>VIDEO-REC:</b> The cinema gamma characteristics for video applications.
<b>S</b> <b>C</b> <b>U</b> <b>F</b> <b>R</b>		



- When the GAMMA MODE SEL item is used for FILMLIKE3, the following settings are recommended.  
MANUAL KNEE: "ON"  
KNEE MASTER POINT: "85.0%"  
KNEE MASTER SLOPE: "50"
- AUTO KNEE is not performed when the GAMMA MODE SEL menu option is set to "FILM-REC" or "VIDEO-REC".

AUTO KNEE is not performed when AJ-RC10G is connected, but the LED of the AJ-RC10G button is lit by pressing the A.KNEE ON button.

Items/ Data Saved	Adjustable Range	Remarks
F-REC DYNAMIC LVL	200% 300% 400% 500% 600%	For setting the dynamic range when GAMMA MODE SEL has been set to "FILM-REC". When GAMMA MODE SEL has not been set to "FILM-REC", this setting cannot be changed.
<b>S</b> <b>C</b> <b>U</b> <b>F</b> <b>R</b>		
F-REC BLACK STR LVL	00% : 30%	For setting the amount of black stretch when GAMMA MODE SEL has been set to "FILM-REC". When GAMMA MODE SEL has not been set to "FILM-REC", this setting cannot be changed.
<b>S</b> <b>C</b> <b>U</b> <b>F</b> <b>R</b>		
V-REC KNEE SLOPE	150% 200% 250% 300% 350% 400% 450% 500%	For setting the amount of knee-slope when GAMMA MODE SEL has been set to "VIDEO-REC". When GAMMA MODE SEL has not been set to "VIDEO-REC", this setting cannot be changed.
<b>S</b> <b>C</b> <b>U</b> <b>F</b> <b>R</b>		
V-REC KNEE POINT	30% : 107%	For setting knee point when GAMMA MODE SEL has been set to "VIDEO-REC". When GAMMA MODE SEL has not been set to "VIDEO-REC", this setting cannot be changed.
<b>S</b> <b>C</b> <b>U</b> <b>F</b> <b>R</b>		

## ■CAMERA SETTING

Items/ Data Saved	Adjustable Range	Remarks
DETAIL	ON OFF	For switching on/off of the detail signals.
<b>S</b> <b>C</b> <b>U</b> <b>F</b> <b>R</b>		
GAMMA	ON OFF	For switching on/off of the gamma correction.
<b>S</b> <b>C</b> <b>U</b> <b>F</b> <b>R</b>		
TEST SAW	ON OFF	Switch the test signal on or off.
<b>S</b> <b>C</b> <b>U</b> <b>F</b> <b>R</b>		
FLARE	ON OFF	Set the flare correction to on or off.
<b>S</b> <b>C</b> <b>U</b> <b>F</b> <b>R</b>		
H-F COMPE.	ON OFF	For switching on/off of the aperture correction.
<b>S</b> <b>C</b> <b>U</b> <b>F</b> <b>R</b>		

### ◆Note

All items in CAMERA SETTING are setting targets of the item PAINT MENU SW(■) R/W in the <SD CARD R/W SELECT> screen.



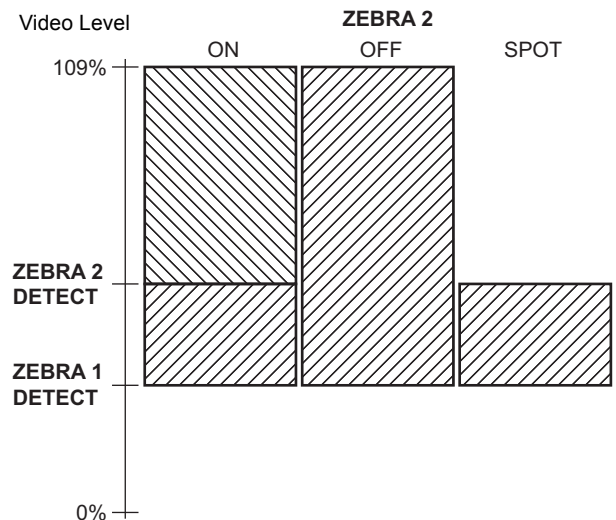
The \_\_\_\_ in the Adjustable Range column indicates the preset mode.

## VF DISPLAY



Items/ Data Saved	Adjustable Range	Remarks
STATUS MODE	<u>NORMAL</u> FILM-REC	For selecting the status display mode of the viewfinder. <b>NORMAL:</b> Normal status display <b>FILM-REC:</b> Status display for FILM REC <b>◆Note</b> Setting STATUS MODE to "FILM-REC" disables the DISP CONDITION and DISP MODE settings. Please refer to [Viewfinder Status Indication Layout] (page 77) for more information.
- C U F R		
DISP CONDITION	<u>NORMAL</u> HOLD	<b>NORMAL:</b> Display status constantly. <b>HOLD:</b> Display status only when the MODE CHECK switch is pressed.
- C U F R		
DISP MODE	1 2 <u>3</u>	Set the DISP MODE. Switch the camera's Warning/Message indication. Please refer to [Display Modes and Setting Changes/adjustment Result Messages] (page 86) for more information.
- C U F R		
VF OUT	Y NAM R G B	For selecting the video signals to display in the viewfinder screen. <b>Y:</b> Brightness signal <b>NAM:</b> Output signal with the highest level among R, G, and B signals. <b>R:</b> Rch signal <b>G:</b> Gch signal <b>B:</b> Bch signal
- C U F R		
VF DTL	00 : <u>05</u> : 10	For setting the detail level of the viewfinder screen. The details of the signals for the viewfinder are further enhanced. If "0" is selected, then the detail is the same as that for the main line.
- C U F R		
VF DTL CORING	<u>00</u> : 15	For setting the noise elimination level for detail in the viewfinder signal.
- C U F R		
VF H.DTL FREQ.	1 : <u>4</u> : 6	For selecting the horizontal detail frequency in the viewfinder signal.
S C U F R		
ZEBRA1 DETECT	0% : <u>70%</u> : 109%	Set the ZEBRA1 detection level (IRE value).
- C U F R		

Items/ Data Saved	Adjustable Range	Remarks
ZEBRA2 DETECT	0% : <u>85%</u> : 109%	Set the ZEBRA2 detection level (IRE value).
- C U F R		
ZEBRA2	OFF <u>SPOT</u> ON	Set the ZEBRA2 to "ON", "OFF", or "SPOT".
- C U F R		
LOW LIGHT LVL	OFF 10% 15% 20% 25% 30% <u>35%</u>	Set the camera incoming light volume at which to display "LOW LIGHT".
- C U F R		
RC MENU DISP.	<u>ON</u> OFF	For the setting to display the menu in the viewfinder screen when the remote control unit is connected to the unit.
- C U F R		
MARKER/CHAR LVL	<u>50%</u> 60% 70% 80% 90% 100%	Adjust the brightness of markers and characters displayed on the viewfinder.
- C U F R		
SYNCHRO SCAN DISP.	sec <u>deg</u>	Set the units for the SYNCHRO SCAN mode display. <b>sec:</b> Display using time. <b>deg:</b> Display using opening angle of the shutter.
- C U F R		

## ZEBRA Pattern Display



## VF MARKER

Items/ Data Saved	Adjustable Range	Remarks
TABLE - C U F R	A B	Select the VF MARKER setting table. First, select table "A" or "B", then set the items below for each table.
CENTER MARK - C U F R	OFF 1 2 3 4	Switch the center mark. <b>OFF:</b> Do not display center mark. <b>1:</b> + (large) <b>2:</b> Hollow (large) <b>3:</b> + (small) <b>4:</b> Hollow (small)
SAFETY MARK - C U F R	OFF 1 2	Select the frame type for the safety zone. <b>OFF:</b> Do not display frame. <b>1:</b> Box  <b>2:</b> Corner frame 
SAFETY AREA - C U F R	80% : 90% : 100%	For setting the size of the safety marker. It is possible to set the size by units of 1% with a fixed ratio between of width and height.
FRAME MARK - C U F R	ON OFF	Set the frame marker to "ON" or "OFF".
FRAME SIG - C U F R	4:3 13:9 14:9 VISTA CNSCO	Set the frame marker. The VISTA ratio is 16:8.65. (1.85:1) The CNSCO ratio is 16:6.81 (2.35:1).
FRAME LVL - C U F R	0 : 15	Set the level outside the frame marker. Note that the level does not change on the LCD monitor. <b>0:</b> Equivalent to signal off. (Blanking status) <b>15:</b> Same brightness as center area.

### ◆Note

The safety zone marker, the safety zone area, and the frame marker are not displayed on the LCD monitor if "LT-BOX" is selected in DOWNCON MODE.

## VF USER BOX

Items/ Data Saved	Adjustable Range	Remarks
USER BOX - C U F R	ON OFF	For setting whether the user box is displayed in the viewfinder or not.
USER BOX WIDTH - C U F R	1 : 13 : 100	For setting the width of the user box.
USER BOX HEIGHT - C U F R	1 : 13 : 100	For setting the height of the user box.
USER BOX H POS - C U F R	-50 : +00 : +50	For setting the horizontal position of the user box center.
USER BOX V POS - C U F R	-50 : +00 : +50	For setting the vertical position of the user box center.

- The user box can be displayed in any position as a boxtype cursor.

### ◆Note

The user box is not displayed on the LCD monitor if "LT-BOX" is selected in DOWNCON MODE.

## VF INDICATOR1

Items/ Data Saved	Adjustable Range	Remarks
EXTENDER - C U F R	ON OFF	For selecting "ON" or "OFF" for the extender display.
SHUTTER - C U F R	ON OFF	Set the shutter speed indication to "ON" or "OFF".
FILTER - C U F R	ON OFF	Set the filter No. indication to "ON" or "OFF".
WHITE - C U F R	ON OFF	Set the AWB PRST/A/B indication to "ON" or "OFF".
GAIN - C U F R	ON OFF	For selecting "ON" or "OFF" for the indication of the currently selected gain.
IRIS - C U F R	OFF IRIS	<b>OFF:</b> Disable the iris value indication. <b>IRIS:</b> Enable the iris value indication. • The display of the iris value and the display of the iris override are interlinked. When the iris override is changed, it is forcibly displayed for 3 seconds.
CAMERA ID - C U F R	BAR OFF	For setting to record the camera ID. <b>BAR:</b> The camera ID is recorded when the color bar signals are recorded. <b>OFF:</b> The camera ID is not recorded.
ID POSITION - C U F R	UPPER R UPPER L LOWER R LOWER L	For setting the position to display the camera ID. <b>UPPER R:</b> Upper right. <b>UPPER L:</b> Upper left. <b>LOWER R:</b> Lower right. <b>LOWER L:</b> Lower left.
DATE/TIME - C U F R	ON OFF	For selecting an option to display year/month/day and hour/minute/second simultaneously when the camera ID is displayed.
ZOOM LVL - C U F R	ON OFF	Set the zoom position indication to "ON" or "OFF".
COLOR TEMP - C U F R	ON OFF	Set the color temperature indication to "ON" or "OFF".
SYSTEM MODE - C U F R	ON OFF	For selecting "ON" or "OFF" for the system mode and REC mode display.
REC FORMAT - C U F R	ON OFF	For selecting "ON" or "OFF" for the recording format display.
FRAME RATE - C U F R	ON OFF	For selecting "ON" or "OFF" for the frame rate display.

## VF INDICATOR2

Items/ Data Saved	Adjustable Range	Remarks
CAC - C U F R	ON OFF	For selecting "ON" or "OFF" for the CAC function display.
GAMMA MODE - C U F R	ON OFF	Select whether the gamma mode is to be displayed or not.
DRS - C U F R	ON OFF	For selecting "ON" or "OFF" for the dynamic range stretcher function display.
P-10LOG - C U F R	ON OFF	For selecting whether to display if P-10LOG is operating or not.
VF GAMMA - C U F R	ON OFF	For selecting "ON" or "OFF" for the viewfinder gamma display.
MONITOR GAMMA - C U F R	ON OFF	For selecting "ON" or "OFF" for the monitor gamma display.

Items/ Data Saved	Adjustable Range	Remarks
P2CARD REMAIN	OFF ONE-CARD TOTAL	Select the indication mode for the P2 card's remaining capacity. <b>OFF:</b> Disable the remaining capacity indication. <b>ONE-CARD:</b> Display the remaining capacity of the P2 card currently used for recording. <b>TOTAL:</b> Display the total remaining capacity of all P2 cards in slots.
- C U F R		
BATTERY	ON OFF	Set the battery voltage indication to "ON" or "OFF".
- C U F R		
AUDIO LVL	ON OFF	Set the audio lever meter indication to "ON" or "OFF".
- C U F R		
TC ON COLOR BAR	ON OFF	Select whether the time code is to be displayed or not on the color bar.
- C U F R		
TC	OFF TCG TCR TCG/TCR	Select the time code to display. <b>OFF:</b> Disable the time code display. <b>TCG:</b> Display the time code generator value in recording mode. <b>TCR:</b> Display the time code reader value in playback mode. <b>TCG/TCR:</b> Display the time code generator value in recording mode, and the time code reader value in playback mode.
- C U F R		
SYSTEM INFO	OFF ALWAYS NORMAL	Select the method of displaying system information and warnings. <b>OFF:</b> Display no warnings other than "TURN POWER OFF" and "SYSTEM ERROR". <b>ALWAYS:</b> Always display warnings. <b>NORMAL:</b> Display warnings for 3 seconds only when problems occur.
- C U F R		

Items/ Data Saved	Adjustable Range	Remarks
SAVE LED	SAVE P2CARD	Set the SAVE lamp function. <b>SAVE:</b> The lamp lights up when the SAVE ON/OFF switch is set to [ON] and the output system assigned in [OPTION MODE] (page 171) is in the save mode. <b>P2CARD:</b> The lamp blinks in synch with the warning message when the P2 card's remaining recording capacity is getting low.
- C U F R		
REC STATUS	ON OFF	Select whether or not to enable "REC" indication in the viewfinder and on the LCD monitor during recording. <b>ON:</b> REC indication enabled. <b>OFF:</b> REC indication not enabled. ◆ <b>Note</b> This option is useful when unit is used independently.
- C U F R		
PROXY REC	ON OFF	When a video encoder card (AJ-YAX800G, optional) is attached, proxy recording information is displayed when recording starts. <b>ON:</b> Display indicating whether proxy recording is to be performed on the P2 card only, or on both the P2 card and the SD memory card. <b>OFF:</b> Proxy recording information is not displayed.
- C U F R		

MODE CHECK IND

Items/ Data Saved	Adjustable Range	Remarks
STATUS	ON OFF	For the setting to display the status screen when the MODE CHECK button is pressed.
- C U F R		
!LED	ON OFF	For the setting to indicate causes for turning on the ⊙ lamp on the viewfinder is displayed when the MODE CHECK button is pressed. The causes for turning on the ⊙ lamp are displayed with !.
- C U F R		
FUNCTION	ON OFF	For the setting to display the FUNCTION screen when the MODE CHECK button is pressed.
- C U F R		
AUDIO	ON OFF	For the setting to display the AUDIO screen when the MODE CHECK button is pressed.
- C U F R		
CAC	ON OFF	For the setting to display the CAC screen when the MODE CHECK button is pressed.
- C U F R		
USER SW STATUS	ON OFF	For selecting whether to display the functions assigned to the user switches, or if some of the switch operations are locked or not when in MODE CHECK.
- C U F R		
P.ON IND	ON OFF	For the setting to display the status screen immediately after turning on the power of the unit. ◆ <b>Note</b> Even if it is set to "ON" in this item, the status screen is not displayed immediately after turning on the power of the unit when the STATUS item is set to "OFF".
- C U F R		

!LED

Items/ Data Saved	Adjustable Range	Remarks
GAIN (0dB)	ON OFF	For the setting to turn the ⊙ lamp on the viewfinder on when the GAIN is set to a value other than "0 dB".
- C U F R		
SHUTTER	ON OFF	For the setting to turn the ⊙ lamp on the viewfinder on when the electronic shutter is activated.
- C U F R		
WHITE PRESET	ON OFF	For the setting to turn the ⊙ lamp on the viewfinder on when the WHITE BAL switch is set to the [PRST] position.
- C U F R		
EXTENDER	ON OFF	For the setting to turn the ⊙ lamp on the viewfinder on when the lens extender is activated.
- C U F R		
B.GAMMA	ON OFF	For the setting to turn the ⊙ lamp on the viewfinder on when the BLACK GAMMA is activated.
- C U F R		
MATRIX	ON OFF	For the setting to turn the ⊙ lamp on the viewfinder on when the color correction table for the linear matrix is selected.
- C U F R		
COLOR CORRECTION	ON OFF	For the setting to turn the ⊙ lamp on the viewfinder on when the 12-axis independent color correction is selected.
- C U F R		
FILTER	ON OFF	For the setting to turn the ⊙ lamp on the viewfinder on when the filter combination is anyone other than 3200 K and CLEAR.
- C U F R		

# CAM OPERATION

The \_\_\_\_ in the Adjustable Range column indicates the preset mode.

## CAMERA ID

Items/ Data Saved	Adjustable Range	Remarks
ID1 - C U F -	***** *****	Setting 1 for the CAMERA ID recorded on color bars. Up to 10 characters are allowed for this setting.
ID2 - C U F -	***** *****	Setting 2 for the CAMERA ID recorded on color bars. Up to 10 characters are allowed for this setting.
ID3 - C U F -	***** *****	Setting 3 for the CAMERA ID recorded on color bars. Up to 10 characters are allowed for this setting.

◆ **Note**

This setting is canceled when READ FACTORY DATA is selected.

## SHUTTER SPEED

Items/ Data Saved	Adjustable Range	Remarks
SYNCHRO SCAN - C U F -	ON OFF	Allocate SYNCHRO SCAN as a shutter speed selectable by the shutter switch.
SYNCHRO SCAN2 - C U F -	ON OFF	Allocate SYNCHRO SCAN2 as a shutter speed selectable by the shutter switch. When SYNCHRO SCAN2 has been allocated, the speed will only be displayed in seconds.
POSITION1 - C U F -	ON OFF	Allocate the shutter speed set by POSITION1 SEL in the <SHUTTER SELECT> screen as the shutter speed selectable by the shutter switch.
POSITION2 - C U F -	ON OFF	Allocate the shutter speed set by POSITION2 SEL in the <SHUTTER SELECT> screen as the shutter speed selectable by the shutter switch.
POSITION3 - C U F -	ON OFF	Allocate the shutter speed set by POSITION3 SEL in the <SHUTTER SELECT> screen as the shutter speed selectable by the shutter switch.
POSITION4 - C U F -	ON OFF	Allocate the shutter speed set by POSITION4 SEL in the <SHUTTER SELECT> screen as the shutter speed selectable by the shutter switch.
POSITION5 - C U F -	ON OFF	Allocate the shutter speed set by POSITION5 SEL in the <SHUTTER SELECT> screen as the shutter speed selectable by the shutter switch.
POSITION6 - C U F -	ON OFF	Allocate the shutter speed set by POSITION6 SEL in the <SHUTTER SELECT> screen as the shutter speed selectable by the shutter switch.

# SHUTTER SELECT

Items/ Data Saved	Adjustable Range	Remarks
POSITION1 SEL  <b>For 59.94 Hz</b> 1/60 1/100 1/120 1/250 1/500 1/1000 1/2000 HALF <u>180.0deg</u> 172.8deg 144.0deg 120.0deg 90.0deg 45.0deg  <b>For 50 Hz</b> 1/50 1/60 1/120 1/250 1/500 1/1000 1/2000 HALF <u>180.0deg</u> 172.8deg 144.0deg 120.0deg 90.0deg 45.0deg		For setting the shutter speed for POSITION1.
- C U F -		
POSITION2 SEL  <b>For 59.94 Hz</b> 1/60 1/100 1/120 1/250 1/500 1/1000 1/2000 HALF <u>180.0deg</u> 172.8deg 144.0deg 120.0deg 90.0deg 45.0deg  <b>For 50 Hz</b> 1/50 1/60 1/120 1/250 1/500 1/1000 1/2000 HALF <u>180.0deg</u> 172.8deg 144.0deg 120.0deg 90.0deg 45.0deg		For setting the shutter speed for POSITION2.
- C U F -		

Items/ Data Saved	Adjustable Range	Remarks
POSITION3 SEL  <b>For 59.94 Hz</b> 1/60 1/100 1/120 1/250 1/500 1/1000 1/2000 HALF <u>180.0deg</u> 172.8deg <u>144.0deg</u> 120.0deg 90.0deg 45.0deg  <b>For 50 Hz</b> 1/50 1/60 1/120 1/250 1/500 1/1000 1/2000 HALF <u>180.0deg</u> 172.8deg <u>144.0deg</u> 120.0deg 90.0deg 45.0deg		For setting the shutter speed for POSITION3.
- C U F -		
POSITION4 SEL  <b>For 59.94 Hz</b> 1/60 1/100 1/120 1/250 1/500 1/1000 1/2000 HALF <u>180.0deg</u> 172.8deg 144.0deg <u>120.0deg</u> 90.0deg 45.0deg  <b>For 50 Hz</b> 1/50 1/60 1/120 1/250 1/500 1/1000 1/2000 HALF <u>180.0deg</u> 172.8deg 144.0deg <u>120.0deg</u> 90.0deg 45.0deg		For setting the shutter speed for POSITION4.
- C U F -		

Items/ Data Saved	Adjustable Range	Remarks
POSITION5 SEL For 59.94 Hz 1/60 1/100 1/120 1/250 1/500 1/1000 1/2000 HALF 180.0deg 172.8deg 144.0deg 120.0deg 90.0deg 45.0deg For 50 Hz 1/50 1/60 1/120 1/250 1/500 1/1000 1/2000 HALF 180.0deg 172.8deg 144.0deg 120.0deg 90.0deg 45.0deg		For setting the shutter speed for POSITION5.
- C U F -		
POSITION6 SEL For 59.94 Hz 1/60 1/100 1/120 1/250 1/500 1/1000 1/2000 HALF 180.0deg 172.8deg 144.0deg 120.0deg 90.0deg 45.0deg For 50 Hz 1/50 1/60 1/120 1/250 1/500 1/1000 1/2000 HALF 180.0deg 172.8deg 144.0deg 120.0deg 90.0deg 45.0deg		For setting the shutter speed for POSITION6.
- C U F -		

◆ **Note**

By setting the shutter speed on the time axis (1/60, 1/100, 1/120, 1/250, 1/500, 1/1000, 1/2000), the frame rate can be varied while keeping the exposure constant.

This is equivalent to Ramping (compensating for changes in frame rate using shutter angle) in a conventional film camera.

## USER SW

Items/ Data Saved	Adjustable Range	Remarks
USER MAIN SW INH I.OVR S.BLK B.GAMMA Y GET DRS ASSIST C.TEMP VFR FRATE VF GAM AUDIO CH1 AUDIO CH2 REC SW RET SW PRE REC SLOT SEL PC MODE		Allocate the USER MAIN button. For descriptions of the functions, see [Assigning Functions to User Buttons] (page 59).
- C U F R		
USER1 SW INH I.OVR S.BLK B.GAMMA Y GET DRS ASSIST C.TEMP VFR FRATE VF GAM AUDIO CH1 AUDIO CH2 REC SW RET SW PRE REC SLOT SEL PC MODE		Allocate the USER 1 button. For descriptions of the functions, see [Assigning Functions to User Buttons] (page 59).
- C U F R		
USER2 SW INH I.OVR S.BLK B.GAMMA Y GET DRS ASSIST C.TEMP VFR FRATE VF GAM AUDIO CH1 AUDIO CH2 REC SW RET SW PRE REC SLOT SEL PC MODE		Allocate the USER 2 button. For descriptions of the functions, see [Assigning Functions to User Buttons] (page 59).
- C U F R		
MARKER SEL (USER3 SW) INH Y GET ASSIST VF GAM VF MARK REC SW RET SW PRE REC SLOT SEL PC MODE		Allocate the MARKER SELECT button. For descriptions of the functions, see [Assigning Functions to User Buttons] (page 59).
- C U F R		
TEXT MEMO SW (USER4 SW) INH Y GET ASSIST VF GAM REC SW RET SW PRE REC SLOT SEL PC MODE TEXT MEMO		Allocate the TEXT MEMO button. For descriptions of the functions, see [Assigning Functions to User Buttons] (page 59).
- C U F R		



Items/ Data Saved	Adjustable Range	Remarks
RET SW	R.REVIEW CAM RET	For setting the function when the user button on the unit, to which the RET button of the lens or the RET SW function is allocated, is pressed. <b>R.REVIEW:</b> Rec review function It is possible to check a last few seconds of the records taken. <b>CAM RET:</b> Return video function It is possible to confirm the return video signals (analog HD Y signals) supplied to the GENLOCK IN connector on the unit by using the viewfinder. <b>◆Notes</b> <ul style="list-style-type: none"> <li>When video signals in a format different from that for the video mode of the unit, return video is not properly displayed.</li> <li>When the GENLOCK item (the &lt;GENLOCK&gt; screen on the SYSTEM SETTING page) is set to "INT", the return video image may be displayed as slightly shaking horizontally.</li> </ul>
- C U F R		
S.BLK LVL	OFF -10 -20 -30	For setting the super black level.
- C U F R		
AUTO KNEE SW	ON OFF DRS	For selecting on/off of the AUTO KNEE function and DRS function. When it is set to "OFF", the AUTO KNEE may not function even if the AUTO KNEE switch is turned on. When the DRS is selected and the AUTO KNEE switch is positioned to [ON], the DRS function turns on.
S C U F R		
SHD.ABB SW CTL	ON OFF	For the setting to adjust the black shading automatically when the AUTO W/B BAL switch is held to the [ABB] side for 8 seconds or more.
- C U F R		

Items/ Data Saved	Adjustable Range	Remarks
COLOR BARS	SMPTE FULL BARS SPLIT	For selecting the color bar to be used. <b>SMPTE:</b> Color bar complied with the SMPTE standards <b>FULL BARS:</b> Full color bar <b>SPLIT:</b> SPLIT color bar for SNG (Satellite News Gathering)
- C U F R		
RC CHECK SW	R.REVIEW PLAY	For specifying what the unit does when the REC check button on the remote control unit is pressed. <b>R.REVIEW:</b> The unit performs rec review. <b>PLAY:</b> The unit performs playback.
- C U F R		
SIDE SW LOCK	OFF ON	For selecting whether to disable the switches (GAIN, OUTPUT and AWB switches) on the side of the unit. When this setting is changed from "OFF" to "ON", the set states of the switches are preserved. While this setting is "ON", the switches remain disabled. <b>OFF:</b> Switches are not disabled. <b>ON:</b> Switches are disabled.
- C U F R		



# MAIN OPERATION

The \_\_\_\_ in the Adjustable Range column indicates the preset mode.

## BATTERY/P2CARD

Items/ Data Saved	Adjustable Range	Remarks
BATTERY SELECT	PROPAC14 TRIMPAC14 HYTRON50 HYTRON140 DIONIC90 DIONIC160 NP-L7 ENDURA7 ENDURA10 ENDURA-D PAG L95 BP-L65/95 NiCd14 TYPE A TYPE B	Select the battery to use. Remaining capacity detection is also performed according to the selected battery. The variable range is changed by the item settings selected on the [BATTERY SETTING1] (page 196) and [BATTERY SETTING2] (page 197) menus. The initial value for "TYPE A" is set to "DIONIC90" while the same for "TYPE B" is set to "HYTRON140". When BP-GL65 or BP-GL95, a battery made of Sony, is used, set this to "BP-L65/95".
- C U F -		
EXT DC IN SELECT	AC ADPT PROPAC14 TRIMPAC14 HYTRON50 HYTRON140 DIONIC90 DIONIC160 NP-L7 ENDURA7 ENDURA10 ENDURA-D PAG L95 BP-L65/95 NiCd14 TYPE A TYPE B	Set the remaining capacity detection type when a battery is connected to the DC IN connector. Remaining capacity detection is also performed according to the selected battery type. The variable range is changed by the item settings selected on the [BATTERY SETTING1] (page 196) and [BATTERY SETTING2] (page 197) menus. Analog voltage is displayed on the viewfinder screen. When BP-GL65 or BP-GL95, a battery made of Sony, is used, set this to "BP-L65/95".
- C U F -		
BATT NEAR END ALARM	ON OFF	Select whether or not to set the alarm to beep when the battery level is low.
- C U F -		
BATT NEAR END CANCEL	ON OFF	If set to "ON", the warning tone and indication can be canceled by pressing the MODE CHECK button when BATT NEAR END ALARM is triggered.
- C U F -		
BATT END ALARM	ON OFF	Select whether or not to set the alarm to beep when the battery is empty.
- C U F -		
BATT REMAIN FULL	70% 100%	Set the display of the remaining battery level indicator bar in the display window when a battery with this function is used. <b>70%:</b> Indicate FULL at 70% capacity. <b>100%:</b> Indicate FULL at 100% capacity.
- C U F -		

Items/ Data Saved	Adjustable Range	Remarks
CARD NEAR END ALARM	ON OFF	Select whether or not to set the alarm to beep when the space remaining on the P2 card is small.
- C U F -		
CARD NEAR END TIME	2min 3min	Set the time at which to indicate that there is little space remaining on the P2 card.
- C U F -		
CARD END ALARM	ON OFF	Select whether or not to set the alarm to beep when the P2 card is full.
- C U F -		
CARD REMAIN/ ■	3min/■ 5min/■	Set the length of time for one segment (■) of the P2 card's remaining capacity indicator bars. <b>3min/■:</b> One segment represents 3 minutes. <b>5min/■:</b> One segment represents 5 minutes.
- C U F -		

## BATTERY SETTING1

Items/ Data Saved	Adjustable Range	Remarks
PROPAC14	* •	Enable selection under BATTERY SELECT. *: Enable selection. •: Disable selection.
	AUTO MANUAL	Select auto or manual to set the NEAR END voltage. <b>AUTO:</b> Set voltage automatically. <b>MANUAL:</b> Set voltage manually.
	11.0 : 13.8 : 15.0	When "MANUAL" is selected in the menu above, set the NEAR END voltage in 0.1 V steps.
- C U F -		
TRIMPAC14	* •	Enable selection under BATTERY SELECT. *: Enable selection. •: Disable selection.
	AUTO MANUAL	Select auto or manual to set the NEAR END voltage. <b>AUTO:</b> Set voltage automatically. <b>MANUAL:</b> Set voltage manually.
	11.0 : 13.6 : 15.0	When "MANUAL" is selected in the menu above, set the NEAR END voltage in 0.1 V steps.
- C U F -		
HYTRON50	* •	Enable selection under BATTERY SELECT. *: Enable selection. •: Disable selection.
	AUTO MANUAL	Select auto or manual to set the NEAR END voltage. <b>AUTO:</b> Set voltage automatically. <b>MANUAL:</b> Set voltage manually.
	11.0 : 13.5 : 15.0	When "MANUAL" is selected in the menu above, set the NEAR END voltage in 0.1 V steps.
- C U F -		
HYTRON140	* •	Enable selection under BATTERY SELECT. *: Enable selection. •: Disable selection.
	AUTO MANUAL	Select auto or manual to set the NEAR END voltage. <b>AUTO:</b> Set voltage automatically. <b>MANUAL:</b> Set voltage manually.
	11.0 : 13.5 : 15.0	When "MANUAL" is selected in the menu above, set the NEAR END voltage in 0.1 V steps.
- C U F -		

Items/ Data Saved	Adjustable Range	Remarks
DIONIC90	* •	Enable selection under BATTERY SELECT. *: Enable selection. •: Disable selection.
	AUTO MANUAL	Select auto or manual to set the NEAR END voltage. <b>AUTO:</b> Set voltage automatically. <b>MANUAL:</b> Set voltage manually.
	11.0 : 13.6 : 15.0	When "MANUAL" is selected in the menu above, set the NEAR END voltage in 0.1 V steps.
- C U F -		
DIONIC160	* •	Enable selection under BATTERY SELECT. *: Enable selection. •: Disable selection.
	AUTO MANUAL	Select auto or manual to set the NEAR END voltage. <b>AUTO:</b> Set voltage automatically. <b>MANUAL:</b> Set voltage manually.
	11.0 : 13.2 : 15.0	When "MANUAL" is selected in the menu above, set the NEAR END voltage in 0.1 V steps.
- C U F -		
NP-L7	* •	Enable selection under BATTERY SELECT. *: Enable selection. •: Disable selection.
	AUTO MANUAL	Select auto or manual to set the NEAR END voltage. <b>AUTO:</b> Set voltage automatically. <b>MANUAL:</b> Set voltage manually.
	11.0 : 13.2 : 15.0	When "MANUAL" is selected in the menu above, set the NEAR END voltage in 0.1 V steps.
- C U F -		
ENDURA7	* •	Enable selection under BATTERY SELECT. *: Enable selection. •: Disable selection.
	AUTO MANUAL	Select auto or manual to set the NEAR END voltage. <b>AUTO:</b> Set voltage automatically. <b>MANUAL:</b> Set voltage manually.
	11.0 : 13.2 : 15.0	When "MANUAL" is selected in the menu above, set the NEAR END voltage in 0.1 V steps.
- C U F -		

Items/ Data Saved	Adjustable Range	Remarks
ENDURA10	* •	Enable selection under BATTERY SELECT. *: Enable selection. •: Disable selection.
	AUTO MANUAL	Select auto or manual to set the NEAR END voltage. <b>AUTO:</b> Set voltage automatically. <b>MANUAL:</b> Set voltage manually.
	11.0 : 13.2 : 15.0	When "MANUAL" is selected in the menu above, set the NEAR END voltage in 0.1 V steps.
- C U F -		
ENDURA-D	* •	Enable selection under BATTERY SELECT. *: Enable selection. •: Disable selection.
	AUTO MANUAL	Select auto or manual to set the NEAR END voltage. <b>AUTO:</b> Set voltage automatically. <b>MANUAL:</b> Set voltage manually.
	11.0 : 13.2 : 15.0	When "MANUAL" is selected in the menu above, set the NEAR END voltage in 0.1 V steps.
- C U F -		
PAG L95	* •	Enable selection under BATTERY SELECT. *: Enable selection. •: Disable selection.
	AUTO MANUAL	Select auto or manual to set the NEAR END voltage. <b>AUTO:</b> Set voltage automatically. <b>MANUAL:</b> Set voltage manually.
	11.0 : 13.5 : 15.0	When "MANUAL" is selected in the menu above, set the NEAR END voltage in 0.1 V steps.
- C U F -		
BP-GL65/95	* •	Enable selection under BATTERY SELECT. *: Enable selection. •: Disable selection.
	AUTO MANUAL	Select auto or manual to set the NEAR END voltage. <b>AUTO:</b> Set voltage automatically. <b>MANUAL:</b> Set voltage manually.
	11.0 : 13.5 : 15.0	When "MANUAL" is selected in the menu above, set the NEAR END voltage in 0.1 V steps.
- C U F -		

## BATTERY SETTING2

Items/ Data Saved	Adjustable Range	Remarks	
NiCd14	* •	Enable selection under BATTERY SELECT. *: Enable selection. •: Disable selection.	
	NEAR END	11.0 : 13.8 : 15.0	Set the NEAR END voltage in 0.1 V steps.
	END	11.0 : 13.4 : 15.0	Set the END voltage in 0.1 V steps.
- C U F -			
TYPE A	* •	Enable selection under BATTERY SELECT. *: Enable selection. •: Disable selection.	
	FULL	12.0 : 15.1 : 17.0	Set the voltage to display the FULL indication in 0.1 V steps.
	NEAR END	11.0 : 13.6 : 15.0	Set the NEAR END voltage in 0.1 V steps.
END	11.0 : 12.9 : 15.0	Set the END voltage in 0.1 V steps.	
	- C U F -		
TYPE B	* •	Enable selection under BATTERY SELECT. *: Enable selection. •: Disable selection.	
	FULL	12.0 : 15.5 : 17.0	Set the voltage to display the FULL indication in 0.1 V steps.
	NEAR END	11.0 : 13.5 : 15.0	Set the NEAR END voltage in 0.1 V steps.
END	11.0 : 13.1 : 15.0	Set the END voltage in 0.1 V steps.	
	- C U F -		

- The remaining battery level is indicated in percentage when a battery with this function is installed on the unit.

Items/ Data Saved	Adjustable Range	Remarks
FRONT VR CH1  - C U F -	OFF FRONT W.L. REAR ALL	Select whether or not to enable the FRONT AUDIO LEVEL control for the signal selected as the input signal to AUDIO IN CH1. <b>OFF:</b> Disabled for any input selected. Recording level does not change by turning the volume control. <b>FRONT:</b> Only enabled when [FRONT] is selected. <b>W.L.:</b> Only enabled when [W.L.] (wireless) is selected. <b>REAR:</b> Only enabled when [REAR] is selected. <b>ALL:</b> Enabled for any input selected.
FRONT VR CH2  - C U F -	OFF FRONT W.L. REAR ALL	Select whether or not to enable the FRONT AUDIO LEVEL control for the signal selected as an input signal to AUDIO IN CH2. <b>OFF:</b> Disabled for any input selected. Recording level does not change by turning the volume control. <b>FRONT:</b> Only enabled when [FRONT] is selected. <b>W.L.:</b> Only enabled when [W.L.] (wireless) is selected. <b>REAR:</b> Only enabled when [REAR] is selected. <b>ALL:</b> Enabled for any input selected.
MIC LOWCUT CH1  - C U F -	OFF FRONT W.L. REAR	Select the microphone low cut filter for input CH1. <b>OFF:</b> The microphone low cut filter is disabled for any input. <b>FRONT:</b> The microphone low cut filter is enabled when the front microphone is selected. <b>W.L.:</b> The microphone low cut filter is enabled only when the wireless microphone is selected. <b>REAR:</b> The microphone low cut filter is enabled only when the rear microphone is selected.
MIC LOWCUT CH2  - C U F -	OFF FRONT W.L. REAR	Select the microphone low cut filter for input CH2. <b>OFF:</b> The microphone low cut filter is disabled for any input. <b>FRONT:</b> The microphone low cut filter is enabled when the front microphone is selected. <b>W.L.:</b> The microphone low cut filter is enabled only when the wireless microphone is selected. <b>REAR:</b> The microphone low cut filter is enabled only when the rear microphone is selected.
MIC LOWCUT CH3  - C U F -	OFF FRONT W.L. REAR	Select the microphone low cut filter for input CH3. <b>OFF:</b> The microphone low cut filter is disabled for any input. <b>FRONT:</b> The microphone low cut filter is enabled when the front microphone is selected. <b>W.L.:</b> The microphone low cut filter is enabled only when the wireless microphone is selected. <b>REAR:</b> The microphone low cut filter is enabled only when the rear microphone is selected.

Items/ Data Saved	Adjustable Range	Remarks
MIC LOWCUT CH4  - C U F -	OFF FRONT W.L. REAR	Select the microphone low cut filter for input CH4. <b>OFF:</b> The microphone low cut filter is disabled for any input. <b>FRONT:</b> The microphone low cut filter is enabled when the front microphone is selected. <b>W.L.:</b> The microphone low cut filter is enabled only when the wireless microphone is selected. <b>REAR:</b> The microphone low cut filter is enabled only when the rear microphone is selected.
LIMITER CH1  - C U F -	ON OFF	Select the limiter. The limiter is enabled when AUDIO SELECT CH1 switch is set to [MAN].
LIMITER CH2  - C U F -	ON OFF	Select the limiter. The limiter is enabled when AUDIO SELECT CH2 switch is set to [MAN].
AUTO LEVEL CH3  - C U F -	ON OFF	Select the level setting method. For more information, see [CH3 and CH4 Recording Levels] (page 62)
AUTO LEVEL CH4  - C U F -	ON OFF	Select the level setting method. For more information, see [CH3 and CH4 Recording Levels] (page 62)
TEST TONE  - C U F -	OFF NORMAL ALWAYS CHSEL	Select the test signal. <b>OFF:</b> Disable test tone output. <b>NORMAL:</b> Test tone signals are output to all of CH1 - CH4 when the OUTPUT/AUTO KNEE selector switch has been switched to [BARS] and CH1 of the AUDIO IN switch has been switched to [FRONT]. <b>ALWAYS:</b> Test tone signals are always output to all of CH1 - CH4 when the OUTPUT/AUTO KNEE selector switch has been switched to [BARS]. <b>CHSEL:</b> Output test tone to the channels where the AUDIO IN switch CH1 or CH2 is set to [FRONT] when OUTPUT/AUTO KNEE selector switch is set to [BARS]. The test tone is not output to CH3 and CH4.

◆ **Note**

The frequency characteristics when the microphone low cut filter is applied are 200 Hz to 10 kHz.

Items/ Data Saved	Adjustable Range	Remarks
FRONT MIC POWER - C U F -	ON OFF	Select the phantom power supply for the front microphone.
REAR MIC POWER - C U F -	ON OFF	Select the phantom power supply for the rear microphone. When "OFF" is selected, no phantom power is supplied even if the LINE/MIC/+48V selector switch is set to [+48V].
MONITOR SELECT - C U F -	STEREO MIX	When the MONITOR select switch is set to [ST] (stereo), select the signal format for the monitor output.
FRONT MIC LEVEL - C U F -	-40dB -50dB	Select the front microphone input level.
REAR MIC CH1 LVL - C U F -	-50dB -60dB	Select the rear microphone input level.
REAR MIC CH2 LVL - C U F -	-50dB -60dB	Select the rear microphone input level.
REAR LINE IN LVL - C U F -	0dB +4dB -3dB	Select the rear line input level.
AUDIO OUT LVL - C U F -	0dB +4dB -3dB	Select the audio output level.
HEADROOM - C U F -	18dB 20dB	Set the headroom (standard level).
WIRELESS WARN - C U F -	ON OFF	Select whether or not to enable the alarm to trigger for poor wireless receiver reception.
WIRELESS TYPE - C U F -	SINGLE DUAL	Select the type of wireless receiver. <b>SINGLE:</b> Select a single channel wireless receiver. <b>DUAL:</b> Select a 2-channel wireless receiver.

Items/ Data Saved	Adjustable Range	Remarks
TC MODE - C U F -	DF NDF	Set the time code mode. <b>DF:</b> Drop frame. <b>NDF:</b> Non drop frame. ◆ <b>Note</b> When the unit operates at 50 Hz or in 24P or 24PA mode, the non-drop frame is always used.
UB MODE - C U F -	USER TIME DATE EXT TCG FRM RATE REGEN	Select the user bits mode. <b>USER:</b> Select UB value set in the LCD section. <b>TIME:</b> Select local time (hours, minutes, seconds). <b>DATE:</b> Select local date and time (2 last digits of year, month, date, time). <b>EXT:</b> The user bits input to the TC IN connector are recorded. If reading fails, USER value is retained. <b>TCG:</b> TCG value enters UB. <b>FRM RATE:</b> Select the shooting information (e.g. frame rate) for the camera. For more information, see [Frame rate information recorded in user bits] (page 66). When clips recorded in native mode are played back, the frame rate information recorded in users bits in the VAUX area is output. <b>REGEN:</b> Read out value stored in the card and record value continuously.

Items/ Data Saved	Adjustable Range	Remarks
VITC UB MODE	USER/EXT TIME DATE TCG FRM_RATE REGEN	Select the user bits mode for VAUX TC (VITC). <b>USER/EXT:</b> If UB MODE is set to "EXT", the EXT value is recorded. If not, USER value set by UB is recorded. <b>TIME:</b> Select local time (hours, minutes, seconds). <b>DATE:</b> Select local date and time (2 last digits of year, month, date, time). <b>TCG:</b> TCG value enters UB. <b>FRM RATE:</b> Select camera shooting information (frame rate, etc.). For more information, see [Frame rate information recorded in user bits] (page 66). <b>REGEN:</b> Read out value stored in card and record value continuously. <b>◆ Note</b> When the unit operates in 24P, 24PA, and Native mode, the "FRM RATE" is fixed.
- C U F -		
TCG SET HOLD	ON OFF	On/off switching for the feature that always starts recording (when the power is turned on again) the TCG value that was set before the power is turned off.
- C U F -		
FIRST REC TC	PRESET REGEN	For selecting whether the time code is regenerated to the value on the P2 card when first recording after switching on the power, inserting the P2 card or changing the P2 card that is the recording target. <b>PRESET:</b> Use the unit's internal time code. <b>REGEN:</b> For clips recorded on the recording-target P2 card, regenerate the time code as the time code of the clip that has the most recent date and time. <b>◆ Notes</b> • Set the date and time accurately. For guidance on setting, see [Setting the Internal Clock's Date and Time] (page 67). • During operation in either 24P or 24PA mode, regeneration of the value of the card recorded in drop-frame is not permitted.
- C U F -		
P.OFF LCD DISPLAY	ON OFF	For selecting whether to allow the time code of the LCD monitor to be set and the counter to be displayed when the power is off. <b>ON:</b> It is possible to set the time code and display the counter when the power is off. <b>OFF:</b> Power-down LCD monitor while camera power is turned off. Setting and indication disabled.
- C U F -		
TC OUT	TCG TCG/TCR	Select the time code to be output to the time code output connector. <b>TCG:</b> Always output time code generator value. <b>TCG/TCR:</b> Output time code generator value in recording mode, and time code reader value in playback mode.
- C U F -		

Items/ Data Saved	Adjustable Range	Remarks
TC DISP SEL	30F 24F	Select the display format for the time code frame digits. (For 1080-59.94i only) For details, refer to [Recording time code and user bits] (page 64). <b>30F:</b> Display time code frame digits in 30 frames. <b>24F:</b> Convert time code frame digits into 24 frames for display.
- C U F -		
TC VIDEO SYNCHRO	0 1 2 3	For setting to correct the time code according to the delay of video signals. <b>0:</b> Do not correct. <b>1:</b> To delay the time code to be input according to the timing of the video images. <b>2:</b> To forward the time code to be output according to the timing of the video images. <b>3:</b> To delay the time code to be input and forward the time code to be output, respectively, according to the timing of the video images. For details, refer to [Externally Locking the Time Code] (page 69).
- C U F -		
REC REVIEW REGEN	ON OFF	For selecting whether the time code is regenerated to the value on the P2 card or not, when subsequent recording starts after setting the RET SW item on the <SW MODE> screen to "R.REVIEW" and pressing the RET button on the lens or the user button on the unit on which the RET SW function is assigned. <b>ON:</b> The time code is regenerated. <b>OFF:</b> The time code is not regenerated.
- C U F -		

## UMID SET/INFO

Items/ Data Saved	Adjustable Range	Remarks
COUNTRY	NO-INFO	Input the user's country. "NO-INFO" is displayed until the input completes.
- C U F -		
ORGANIZATION	NO-INFO	Input the user's organization or company name. "NO-INFO" is displayed until the input completes.
- C U F -		
USER	NO-INFO	Input the user name. "NO-INFO" is displayed until the input completes.
- C U F -		
DEVICE NODE		Indicate the product ID number.
- - - - -		

### ◆ Note

Please refer to [Setting UMID Information] (page 74) for the UMID information setting.



# FILE

The \_\_\_\_ in the Adjustable Range column indicates the preset mode.

## SD CARD READ/WRITE

Items/ Data Saved	Adjustable Range	Remarks
R.SELECT	1 : 8	Select the file number to read out.
- - - F -		
READ		Read out the data from the SD memory card.
- - - - -		
W.SELECT	1 : 8	Select the file number to write in.
- - - F -		
WRITE		Write the unit's menu data to the SD memory card.
- - - - -		
CARD CONFIG		Format the SD memory card.
- - - - -		
TITLE READ		Read out the title of the data recorded on the SD memory card.
- - - - -		
TITLE1 - 8	***** **	Up to 8 letters can be set for the title name.
- - - - -		

### ◆ Note

For a USB DEVICE mode, errors occur even if the respective items for SD CARD READ/WRITE are executed, since it does not access an SD memory card. Set PC MODE to "OFF" and then execute the operation again.

## SD CARD R/W SELECT

Items/ Data Saved	Adjustable Range	Remarks
SYSTEM MODE R/W	ON OFF	Select whether or not to include the settings for the options on the <SYSTEM MODE> screen when reading out or writing to the SD memory card.
- - - F -		
ID READ/WRITE	ON OFF	Select whether or not to include the CAMERA ID when reading out or writing to the SD memory card.
- - - F -		
USER MENU SELECT R/W	ON OFF	Select whether or not to include the settings on the USER MENU SELECT page when reading out or writing to the SD memory card.
- - - F -		
SYSTEM MENU R/W	ON OFF	Select whether or not to include the set values on all screens except the <SYSTEM MODE> screen on the SYSTEM SETTING page and the set values on the OPTION MENU page when reading out or writing to the SD memory card.
- - - F -		
PAINT MENU LEVEL R/W	ON OFF	Select whether or not to include the adjusted values on the PAINT page when reading out or writing to the SD memory card.
- - - F -		
PAINT MENU SW(■) R/W	ON OFF	Select whether or not to include the set values on the PAINT MENU page when reading out or writing to the SD memory card.
- - - F -		
VF MENU R/W	ON OFF	Select whether or not to include the set values on the VF page when reading out or writing to the SD memory card.
- - - F -		
CAM OPE MENU R/W	ON OFF	Select whether or not to include the set values on the CAM OPERATION page when reading out or writing to the SD memory card.
- - - F -		
MAIN OPE MENU R/W	ON OFF	Select whether or not to include the set values on the MAIN OPERATION page when reading out or writing to the SD memory card.
- - - F -		
MAINTE MENU R/W	ON OFF	Select whether or not to include the set values on the MAINTENANCE page when reading out or writing to the SD memory card.
- - - F -		

## CAC FILE CARD READ

Items/ Data Saved	Adjustable Range	Remarks
CARD FILE SELECT	01 : 32	For selecting the number of the chromatic aberration correction file on the SD memory card that will be read or deleted.
- - - F -		
READ		For reading CAC file from the SD memory card. When selected, the following FILE READ screen appears.
- - - - -		
DELETE		For deleting a CAC file from the SD memory card.
- - - - -		
TITLE READ		For reading the name of a CAC file on the SD memory card.
- - - - -		
TITLE SCROLL	01 : 25	For scrolling through the CAC files on the SD memory card. Select this option using the cursor. Press the jog dial button, and then turn the jog dial button to scroll through the CAC files.
- - - - -		
01: - 32:		For displaying up to 32 file names, each up to 27 characters in length.
- - - - -		

## FILE READ screen

Items/ Data Saved	Adjustable Range	Remarks
TITLE		For displaying the name of a CAC file set using READ from the <CAC FILE CARD READ> screen.
YES		For storing a CAC file read from the SD memory card to the internal memory of the unit.
NO (CANCEL)		For canceling storage of a CAC file read from the SD memory card to the internal memory of the unit.
MEM STORE NO.	EMPTY 01 : 32	<b>EMPTY:</b> For searching through the internal memory of the unit in numerical order when storing data and only stores data in free locations. <b>01 - 32:</b> For storing data at selected number. When a CAC file already exists at the selected number, it is overwritten.
TITLE SCROLL	01 : 25	For scrolling through the CAC files in the internal memory of the unit. Select this option using the cursor. Press the jog dial button, and then turn the jog dial button to scroll through the CAC files.
01: - 32:		For displaying up to 32 file names, each up to 27 characters in length.

## LENS FILE

Items/ Data Saved	Adjustable Range	Remarks
FILE NO. - - - - F -	01 : 64	Select the lens file number.
READ - - - - -		Read the lens file data.
WRITE - - - - -		Write the lens file data.
RESET ALL - - - - -		For resetting the all data of the lens file.
TITLE SCROLL - - - - -	01 : 59	Scrolls through the lens files.
TITLE - - - - -	***** *****	Up to 12 letters can be set for the title name.
01 - 64 - - - - -		For displaying up to 64 file names.

## LENS FILE CARD R/W

Items/ Data Saved	Adjustable Range	Remarks
CARD FILE SELECT - - - - F -	1(01-08) 2(09-16) 3(17-24) 4(25-32) 5(33-40) 6(41-48) 7(49-56) 8(57-64)	For selecting the number of the lens file in the SD memory card.
READ - - - - -		For reading the lens file data from the SD memory card.
WRITE - - - - -		For writing the lens file data into the SD memory card.
TITLE READ - - - - -		For reading the title of the lens file in the SD memory card.
TITLE1 - 8 - - - - -	***** *****	For setting a title consisting of not more than 12 characters.

### ◆ Note

For a USB DEVICE mode, errors occur even if the respective items of LENS FILE CARD R/W are executed, since it does not access an SD memory card. Set PC MODE to "OFF" and then execute the operation again.

## SCENE

Items/ Data Saved	Adjustable Range	Remarks
READ CINEMATOGRAPH - - - - -		Read out the cinematograph setting.
READ USER DATA - - - - -		Read out the data from the user area in the memory.
SCENE SEL - - - - F -	01 : 16	Select the scene file.
READ - - - - -		Read the scene file.
WRITE - - - - -		Write the scene file.
RESET - - - - -		Reset the scene file values to the initial values.
TITLE SCROLL - - - - -	01 : 12	Scrolls through the scene files.
TITLE - - - - -		Create the scene file title.
01: - 16: - - - - -		For displaying up to 16 file names.

### ◆ Note

For a USB DEVICE mode, errors occur even if the READ USER DATA item is executed, since it does not access an SD memory card. Set PC MODE to "OFF" and then execute the operation again.

## INITIALIZE

Items/ Data Saved	Adjustable Range	Remarks
READ FACTORY DATA - - - - -		The menu (MAIN MENU, OPTION MENU) values are all reset to factory settings. ◆ Note The settings for the following are not reset to the factory-set values. <ul style="list-style-type: none"> <li>• Scene file</li> <li>• User data</li> <li>• Lens file</li> <li>• Black shading data</li> </ul>
WRITE USER DATA - - - - -		Save the user preference menu data in the camera's internal memory.

### ◆ Note

For a USB DEVICE mode, errors occur even if the READ FACTORY DATA item is executed, since it does not access an SD memory card. Set PC MODE to "OFF" and then execute the operation again.

# MAINTENANCE

The \_\_\_ in the Adjustable Range column indicates the preset mode.

## LENS ADJ

Items/ Data Saved	Adjustable Range	Remarks
F2.8 ADJ - - - - -	ON OFF	The iris is only set to F2.8 when this item set to "ON". (Adjustment to F2.8 will be executed on the lens)
F16 ADJ - - - - -	ON OFF	The iris is only set to F16 when this item set to "ON". (Adjustment to F16 will be executed on the lens)

## BLACK SHADING

Items/ Data Saved	Adjustable Range	Remarks
CORRECT - C U F R	ON OFF	On/off switching for digital black shading compensation.
DETECTION (DIG) - - - - -	-	Execute digital black shading compensation.

## WHITE SHADING

Items/ Data Saved	Adjustable Range	Remarks
CORRECT - C U F R	ON OFF	On/off switching for white shading compensation.
R H SAW R H PARA R V SAW R V PARA G H SAW G H PARA G V SAW G V PARA B H SAW B H PARA B V SAW B V PARA - - - F -	-255 : +000 : +255	For executing the white shading compensation manually. The sawteeth-shaped waveform and the parabola waveform of the respective RGB channels are adjusted in the horizontal direction and the vertical direction.

## LENS FILE ADJ

Items/ Data Saved	Adjustable Range	Remarks
RB GAIN CTRL RESET - - - F -	ON OFF	<b>ON:</b> The gains of Rch and Bch adjusted in <RB GAIN CONTROL> screen are reset. Furthermore, the flare levels of Rch, Gch and Bch that are adjusted on <RGB BLACK CONTROL> screen are reset. <b>OFF:</b> The gains of Rch and Bch adjusted in <RB GAIN CONTROL> screen are enabled. Furthermore, the flare levels of Rch, Gch and Bch that are adjusted on <RGB BLACK CONTROL> screen are enabled.
LENS R GAIN OFFSET - - - F -	-200 : +000 : +200	For compensating Rch sensitivity of the lens used.
LENS B GAIN OFFSET - - - F -	-200 : +000 : +200	For compensating Bch sensitivity of the lens used.
LENS R FLARE - - - F -	000 : 100	For adjusting the flare level of Rch.
LENS G FLARE - - - F -	000 : 100	For adjusting the flare level of Gch.
LENS B FLARE - - - F -	000 : 100	For adjusting the flare level of Bch.

- Data adjusted on the <LENS FILE ADJ> screen can be stored on an SD memory card as a lens file.

## CAC ADJ

Items/ Data Saved	Adjustable Range	Remarks
CAC CONTROL	ON OFF	<b>ON:</b> Enable chromatic aberration correction <b>OFF:</b> Disable chromatic aberration correction
- - - U F R		
CAC FILE DELETE	-	Deletes the CAC file stored in the internal memory of the unit, and selected using CAC FILE NO.
- - - - -		
CAC FILE NO.	01 : 32	Selects a CAC file when manual correction is in use. Also, selects CAC file for deletion when deleting CAC files using CAC FILE DELETE.
- - - - F -		
TITLE SCROLL	01 : 25	Scrolls through CAC files. Select this option using the cursor. Press the jog dial button, and then turn the jog dial button to scroll through the CAC files.
- - - - F -		
01:		For displaying up to 32 file names, each up to 27 characters in length.
- - - - -		
02:		For displaying up to 32 file names, each up to 27 characters in length.
- - - - -		
03:		For displaying up to 32 file names, each up to 27 characters in length.
- - - - -		
04:		For displaying up to 32 file names, each up to 27 characters in length.
- - - - -		
05:		For displaying up to 32 file names, each up to 27 characters in length.
- - - - -		
06:		For displaying up to 32 file names, each up to 27 characters in length.
- - - - -		
07:		For displaying up to 32 file names, each up to 27 characters in length.
- - - - -		
08:		For displaying up to 32 file names, each up to 27 characters in length.
- - - - -		

## DIAGNOSTIC1

Items/ Data Saved	Adjustable Range	Remarks
CAMSOFT MAIN		Displays the version of the main software for the camera microprocessor.
- - - - -		
CAM TABLE		Displays the version of the camera block settings table.
- - - - -		
PULSE FPGA		Displays the version of the program for driving the CCD.
- - - - -		
UCIF FPGA		Displays the version of the program for the microprocessor interface FPGA.
- - - - -		
FM FPGA		Displays the version of the program for the frame memory control FPGA.
- - - - -		

Items/ Data Saved	Adjustable Range	Remarks
CHAR FPGA		Displays the version of the program for the HD signal I/O control FPGA.
- - - - -		
DC FPGA		Displays the version of the program for the SD signal I/O control FPGA.
- - - - -		

## DIAGNOSTIC2

Items/ Data Saved	Adjustable Range	Remarks
SYSCON SOFT		Display the software version for the system control microprocessor.
- - - - -		
LCD SOFT		Display the software version for the LCD microprocessor.
- - - - -		
P2CS OS		Display the OS version for the streaming controller.
- - - - -		
P2CS AP		Display the application version for the streaming controller.
- - - - -		
SH4CTRL FPGA		Display the program version for the streaming control FPGA.
- - - - -		
PRCCTRL FPGA		Displays the version of the program for the PRE RECORDING control FPGA.
- - - - -		
SYSIF FPGA		Display the program version for the serial interface FPGA.
- - - - -		
AVC-I SOFT		Display the control software version of the AVC-I board.
- - - - -		
AVC-I FPGA		Display the FPGA program version of the AVC-I board.
- - - - -		

## HOURS METER

Items/ Data Saved	Adjustable Range	Remarks
OPERATION		Display total hours the camera power has been turned on.
- - - - -		
P.ON TIMES		Display total number of times the POWER switch has been turned on.
- - - - -		

# OPTION MENU

The \_\_\_\_ in the Adjustable Range column indicates the preset mode.

## OPTION

Items/ Data Saved	Adjustable Range	Remarks
ENG SECURITY	ON OFF	Select whether or not to prohibit opening the menu screen. <b>ON:</b> Menu screen cannot be opened. Please consult your distributor to release the setting. <b>OFF:</b> Menu screen can be opened.
- - - - -		
FRAME RATE UB	FRM RATE MENU	For setting the user bits to record when the video system is set to 24P or 24PA. For details, refer to [Recording time code and user bits] (page 64). <b>FRM RATE:</b> For recording the shooting information (frame rate etc.) of the camera. <b>MENU:</b> This follows the settings in the UB MODE item and the VITC UB MODE item of <TC/UB> screen. However, the camera shooting information is always recorded when recording in native mode.
- C - - - -		
AUDIO OUT DELAY	DELAYED THROUGH	Select whether or not to delay audio, headphone and speaker outputs. <b>DELAYED:</b> Delay audio output in synchronization with video output. <b>THROUGH:</b> Output audio input without delay. This setting prevents echo effect between the sound source and audio output when the sound source is near the unit.
- C - - - -		
FAN MODE	OFF AUTO	For setting the operation mode of the fan <b>OFF:</b> The fan always stops. <b>AUTO:</b> The fan will run automatically when the temperature in the unit increases. <b>◆Note</b> Once the power is turned off, this will always be set to "AUTO" whenever the power is turned on. If the unit is operated as the fan stops, the temperature in the unit will increase, and data may not record or play back properly. Use the unit after setting this item to "AUTO" for normal operation.
- - - - -		
RATE SET AT REC	ON OFF	For setting if the frame rate can be changed or not during VFR recording. <b>ON:</b> Frame rate can be changed. <b>OFF:</b> Frame rate cannot be changed. <b>◆Note</b> Audio while recording VFR will not be recorded onto the P2 card regardless of the frame rate setting when this is set to "ON".
- C U F -		

## AREA SETTING

Items/ Data Saved	Adjustable Range	Remarks
AREA SELECT	NTSC NTSC (J) PAL	<b>NTSC:</b> Selects an NTSC area outside Japan. <b>NTSC (J):</b> Selects Japan. <b>PAL:</b> Selects a PAL area.
- - - - -		
■AREA SET	-	For changing the area setting selected using AREA SELECT. For more details about settings used in different areas, refer to [Color TV Standard Settings (Settings for frame frequency)] (page 14).
- - - - -		

# Updating the firmware incorporated into the unit

The firmware can be updated using either of the following two methods.

## 1. Checking the current version of firmware and performing the update using the dedicated tool (P2\_Status\_Logger)

PASS (P2 Asset Support System) is only available to customers who have completed customer registration with Panasonic.

Log in to PASS and use the dedicated tool (P2\_Status\_Logger) to check the version information of the firmware on the unit and download links to pages containing the necessary firmware.  
For further information about downloading and using P2\_Status\_Logger, log in to PASS and refer to the relevant pages. Besides access to PASS, completing customer registration has a number of other benefits. For further details, refer to the PASS (P2 Asset Support System) website ([http://panasonic.biz/sav/pass\\_e/](http://panasonic.biz/sav/pass_e/)).

## 2. Checking the current version of the firmware using the unit and performing the update

From the MAINTENANCE menu page, check the current version of firmware on the unit using the <DIAGNOSTIC1> and <DIAGNOSTIC2> screens. Then, access the website listed below for the latest firmware-related information and download firmware as required.

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### ◆ Notes

- The update is completed by loading the downloaded file onto the unit via an SD memory card. For further details about the updating methods, refer to the following website.  
<http://pro-av.panasonic.net/>
- Be sure to use a compatible SD memory card. The unit is compatible with SD memory cards based on the SD and SDHC standards. Also, be sure to format the memory card using the unit before use.

# Specifications

## General

Power supply:  
DC 12 V (11.0 V to 17.0 V)  
Power consumption:  
42 W (Main unit only)

 indicates safety information.

Operating temperature:  
0 °C to 40 °C (32 °F to 104 °F)  
Storage temperature:  
-20 °C to 60 °C (-4 °F to 140 °F)  
Operating humidity:  
10% to maximum 85% (relative humidity)  
Maximum continuous operation:  
Approximately 120 minutes (using an Anton/Bauer  
DIONIC90 battery)  
Dimensions (W×H×D):  
137 mm×209 mm×318 mm  
(5-3/16 inches×8-1/2 inches×12-1/2 inches)  
(excluding handle and wireless option cover)  
Weight:  
Approx. 4.9 kg (10.8 lb)  
(main unit only, excluding VF mount)

## Camera Unit

Pickup devices:  
2/3-type, 2,200,000 pixels, IT-type CCD×3  
Image pickup scheme:  
RGB 3CCD  
Total pixels:  
2010 (H)×1120 (V)  
Valid pixels:  
1920 (H)×1080 (V)  
CC Filter:  
A: 3200 K  
B: 4300 K  
C: 5600 K  
D: 1/2 ND  
ND Filter:  
1: CLEAR  
2: 1/4 ND  
3: 1/16 ND  
4: 1/64 ND  
Quantizing:  
14-bit  
Horizontal drive frequency:  
74.1758 MHz (59.94 Hz/23.98 Hz)  
74.25 MHz (50 Hz/24 Hz)  
Sampling frequencies:  
74.1758 MHz (59.94 Hz/23.98 Hz)  
74.25 MHz (50 Hz/24 Hz)  
Digital signal processing:  
74.1758 MHz (59.94 Hz/23.98 Hz)  
74.25 MHz (50 Hz/24 Hz)  
Programmable gain:  
-3 dB, 0 dB, 3 dB, 6 dB, 9 dB, 12 dB, 15 dB, 18 dB,  
21 dB, 24 dB, 27 dB or 30 dB  
VFR function:  
1 to 30FRAME  
(1080-59.94i/1080-23.98PsF/1080-24PsF)  
1 to 25FRAME (1080-50i)

Shutter speeds:  
180.0 deg, 172.8 deg, 144.0 deg,  
120.0 deg, 90.0 deg, 45.0 deg,  
1/50 s (50 Hz), 1/60 s, 1/100 s (59.94 Hz), 1/120 s,  
1/250 s, 1/500 s, 1/1000 s, 1/2000 s, HALF  
Synchro-scan shutter:  
1/61.7 s to 1/7200 s  
(1080/59.94i)  
1/30.9 s to 1/3600 s  
(1080/29.97P)  
1/24.7 s to 1/2880 s  
(1080/23.98P (PA), 1080/24P)  
1/51.4 s to 1/6000 s  
(1080/50i)  
1/25.7 s to 1/3000 s  
(1080/25P)  
Lens mount:  
2/3-type bayonet  
Color separation optical system:  
Optical prism (F1.4)  
Sensitivity:  
F10 (2000 lx, 3200 K, 89.9% reflection, 1080/59.94i)  
Minimum object illuminance:  
0.042 lx (F1.4 at +30 dB and VFR=1 frame)  
2.48 lx (F1.4 at +30 dB)  
Video S/N:  
54 dB (standard)  
Horizontal resolution:  
1000 TV lines or more  
Registration error:  
0.03% or less (all areas, excluding lens distortion)



### Record media:

P2 card

### Recording formats:

Selectable from AVC-Intra100, AVC-Intra50,  
DVCPRO HD

### Recording video signals:

1080/59.94i, 1080/50i, 1080/29.97P, 1080/23.98P,  
1080/24P, 1080/25P

### Recording audio signals:

48 kHz, 16-bit, 4ch

### Recording/playback time:

AVC-Intra100/DVCPRO HD:

8 GB×1: approx. 8 min  
16 GB×1: approx. 16 min  
32 GB×1: approx. 32 min

AVC-Intra50: 8 GB×1: approx. 16 min  
16 GB×1: approx. 32 min  
32 GB×1: approx. 64 min

### ◆ Note

This recording time represents one shot continuously recorded on a P2 card. The recording time may be shorter, depending on the number of shots recorded.

**For the latest information on P2 cards not available in the operating Instructions, visit the P2 Support Desk at the following Web sites.**

<http://pro-av.panasonic.net/>

## Digital Video System

### Sampling frequency:

Y: 74.1758 MHz (59.94 Hz)  
74.2500 MHz (50 Hz)  
PB/PR: 37.0879 MHz (59.94 Hz)  
37.1250 MHz (50 Hz)

### Quantizing:

AVC-Intra100/AVC-Intra50: 10 bits  
DVCPRO HD: 8 bits

### Video compression schemes:

AVC-Intra100/AVC-Intra50:  
MPEG4 AVC/H.264 Intra Profile  
DVCPRO HD: DV-Based Compression  
(SMPTE370M)

## Audio Characteristics

### Frequency response:

20 Hz to 20 kHz ±1.0 dB (at standard level)

### Dynamic range:

Minimum 85 dB (1 kHz, AWTD)

### Distortion factor:

0.1% or less (1 kHz, standard level)

### Headroom:

20 dB/18 dB selectable with menu

## Input/output Unit

<b>GENLOCK IN:</b> BNC×1, 1.0 VP-P, 75 Ω (This is available as the return video input connector.)	<b>MIC IN:</b> XLR×1, 5 pins +48 V phantom (on/off selectable with menu) −40 dBu (−50 dBu/−40 dBu selectable with menu)
<b>MON OUT:</b> BNC×1 (It can be switched among HD SDI/VBS.) HD SDI: 0.8 VP-P, 75 Ω (Compliant with the SMPTE292M/ 299M standards) VBS: 1.0 VP-P, 75 Ω	<b>WIRELESS IN:</b> 25 pin, D-SUB, −40 dBu
<b>HD SDI A:</b> BNC×1 HD SDI: 0.8 VP-P, 75 Ω (Compliant with the SMPTE292M/ 299M/372M/352M standards) Dual Link with HD SDI B supported	<b>AUDIO OUT CH1/CH2:</b> XLR×1, 5 pins, +4 dBu (−3 dBu/0 dBu/+4 dBu selectable with menu) Balanced low-impedance output
<b>HD SDI B:</b> BNC×1 HD SDI: 0.8 VP-P, 75 Ω (Compliant with the SMPTE292M/ 299M/372M/352M standards) Dual Link with HD SDI A supported	<b>Headphones:</b> Stereo mini jack×2
<b>TC IN:</b> BNC×1, 0.5 VP-P to 8 VP-P, 10 kΩ	<b>DC IN:</b> XLR×1, 4 pins, DC 12 V (DC 11.0 V to 17.0 V)
<b>TC OUT:</b> BNC×1, 2.0±0.5 VP-P, low impedance	<b>DC OUT:</b> 4 pins, DC 12 V (DC 11.0 V to 17.0 V) Maximum rated current: 1.5 A
<b>AUDIO IN CH1/CH2:</b> XLR×2, 3 pins LINE, MIC, and +48 V switch-selectable LINE: +4 dBu (−3 dBu/0 dBu/+4 dBu selectable with menu) MIC: −60 dBu (−60 dBu/−50 dBu selectable with menu) MIC +48 V: Compatible with +48 V phantom power supply −60 dBu (−60 dBu/−50 dBu selectable with menu)	<b>LENS:</b> 12 pins <b>EVF:</b> 20 pins <b>REMOTE:</b> 10 pins (connector for AJ-RC10G) <b>GPS:</b> 6 pins (connector for AJ-GPS910G) <b>USB 2.0 (HOST):</b> Type-A connector, 4-pin, in accordance with USB Ver. 2.0 <b>USB 2.0 (DEVICE):</b> Type-B connector, 4-pin, in accordance with USB Ver. 2.0

## Accessories

Shoulder Strap  
Front Audio Level control knob  
Control knob mounting screw×1  
CD-ROM

Weight and dimensions when shown are approximately.  
Specifications are subject to change without notice.

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## Software information for this product

1 Customer advisory: This product includes software licensed under the GNU General Public License (GPL) and GNU Lesser General Public License (LGPL); customers have the right to download, modify, and redistribute source code for this software.

Descriptions of the GPL and LGPL are stored on the installation CD included with this camera-recorder. See the folder named \LDOC. (The description is the original (written in English)). To download the relevant source code, visit <http://pro-av.panasonic.net/>.

Please note that we cannot answer any questions you may have about the content, etc. of any source code you may obtain from the above Web site.

2 This product includes software licensed under the MIT License. A description of the MIT is stored on the installation CD included with this camera-recorder. See the folder named \LDOC. (The description is the original (written in English)).

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This product is licensed under the AVC patent portfolio license for the personal and non-commercial use of a consumer to (i) encode video in compliance with the AVC Standard ("AVC Video") and/or (ii) decode AVC Video that was encoded by a consumer engaged in a personal and non-commercial activity and/or was obtained from a video provider licensed to provide AVC Video. No license is granted or shall be implied for any other use. Additional information may be obtained from MPEG LA, LLC.

See <http://www.mpegla.com>.

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|--|
| <ul style="list-style-type: none"><li>• Unislot is a trademark of Ikegami Tsushinki Co., Ltd.</li><li>• Other names of companies and products are trademarks or registered trademarks of the respective companies.</li></ul> |
|--|

## Information for Users on Collection and Disposal of Old Equipment and used Batteries



These symbols on the products, packaging, and/or accompanying documents mean that used electrical and electronic products and batteries should not be mixed with general household waste. For proper treatment, recovery and recycling of old products and used batteries, please take them to applicable collection points, in accordance with your national legislation and the Directives 2002/96/EC and 2006/66/EC.

By disposing of these products and batteries correctly, you will help to save valuable resources and prevent any potential negative effects on human health and the environment which could otherwise arise from inappropriate waste handling. For more information about collection and recycling of old products and batteries, please contact your local municipality, your waste disposal service or the point of sale where you purchased the items.

Penalties may be applicable for incorrect disposal of this waste, in accordance with national legislation.

EU



### For business users in the European Union

If you wish to discard electrical and electronic equipment, please contact your dealer or supplier for further information.

### Information on Disposal in other Countries outside the European Union

These symbols are only valid in the European Union. If you wish to discard these items, please contact your local authorities or dealer and ask for the correct method of disposal.

EU



Cd

### Note for the battery symbol (bottom two symbol examples):

This symbol might be used in combination with a chemical symbol. In this case it complies with the requirement set by the Directive for the chemical involved.

**Panasonic Corporation**

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